

Question Booklet Series : **A** Question Booklet Sr. No. **011017**

## Ph.D. Entrance Test – 2014

Subject : **Ancient Indian History Culture & Archeology**

### Paper-I

**Important:** Please consult your Admit Card/Roll No. slip before filling your Roll Number on the Test Booklet and Answer Sheet.

Roll No. *In Figure* *In Words*

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O.M.R. Answer Sheet Serial No.

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Signature of the Candidate \_\_\_\_\_

Time: 60 minutes

Number of Questions: 50

Maximum Marks : 50

### INSTRUCTIONS

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1. The Pleistocene epoch began:
 

A) 3 mya	B) 2.5 mya
C) 1.6 mya	D) 500,000 years ago
2. A small primate skeleton named "Lucy" was found at :
 

A) Laetoli, Tanzania	B) Hadar, Ethiopia
C) Lake Turkana, Kenya	D) Taung, South Africa
3. What is Resistivity Survey?
 

A) Detecting magnetic anomalies in the soil	B) Detecting electrical anomalies in the soil
C) Detecting chemical anomalies in the soil	D) Detecting sound anomalies in the soil
4. Harries Matrix is:
 

A) A surface survey technique	B) A sub-surface survey technique
C) An excavation technique	D) A recording technique
5. Who wrote *Anabasis of Alexander*?
 

A) Pliny	B) Strabo
C) Megasthenes	D) Arrian
6. What are 'Sondages'?
 

A) Test pits	B) Square excavation boxes
C) Isolated excavation pits	D) Step trenches
7. The cultural sequence of Mehrgarh is as follows:
 

A) Palaeolithic to the Historical period	B) Neolithic to the Early Harappan period
C) Neolithic to the Mature Harappan period	D) Early Harappan to the Late Harappan period
8. Perforated jars were introduced in one of the following periods:
 

A) Neolithic	B) Mature Harappan
C) Painted Grey ware	D) Black and Red ware
9. Who excavated the site of Dholavira?
 

A) B.B.Lal	B) M.K.Dhavlikar
C) R.S.Bisht	D) S.R.Rao
10. Who put forward the "Aryan Invasion" theory for the decline of the Harappan civilization:
 

A) R.E.M. Wheeler	B) G.Dales
C) W. Fairservis	D) G.Singh
11. The main source of chert for the Harappan civilization was:
 

A) Aravalli range	B) Rohri Hills
C) Vindhyan range	D) Nilgiri hills

12. Baghor II is located in:  
A) Son valley  
B) Belan valley  
C) Ghatprabha valley  
D) Tap: valley
13. Which of the following sites was not excavated by R.E.M Wheeler  
A) Brahmagiri  
B) Harappa  
C) Arikamedu  
D) Shishupalgarh
14. The ancient Pushkalavati is represented by the site of :  
A) Bhir mound  
B) Sirkap  
C) Charsada  
D) Tepe yahya
15. Painted Grey ware was first identified at :  
A) Alamgirpur  
B) Bhagwanpura  
C) Hastinapur  
D) Ahichchhatra
16. Stone portrait of King Ashoka was found at:  
A) Taxila  
B) Kanaganahalli  
C) Ropar  
D) Mathura
17. The term *atavika* in the Arthashastra refer to:  
A) Wild savage forest tribes  
B) City dwellers  
C) Frontier chiefs  
D) Dangerous wandering tribes
18. *Periplus Maris Erythraei* is written in:  
A) Greek  
B) Roman  
C) Latin  
D) French
19. The term *adhavapa* refers to  
A) Land measure  
B) Water body  
C) Quantity of crop  
D) Sowing capacity
20. Which of the following is suitable for Potassium Argon dating:  
A) Burnt wood  
B) Burnt clay  
C) Volcanic ash  
D) Burnt grain
21. The Rabatak inscription was found in:  
A) Pakistan  
B) Afghanistan  
C) Bangladesh  
D) Nepal
22. The Nanaghat inscription of Naganika is dated to the:  
A) 1st century BCE  
B) 2nd century BCE  
C) 1st century CE  
D) 2nd century CE
23. The first issue of *Epigraphica Indica* was published in:  
A) 1865  
B) 1888  
C) 1900  
D) 1905

24. The Shar-i-Kuna Greek-Aramic inscription is attributed to:  
A) Heliodorus B) Ashoka  
C) Kharavela D) Kanishka
25. Asko Parpola is famous for his work on:  
A) Cuneiform script B) Kharosthi script  
C) Brahmi script D) Indus script
26. The capital of the Vatsa Kingdom was:  
A) Vaishali B) Kaushambi  
C) Shravasti D) Pataliputra
27. Who was the ruler of Vidisha mentioned in the Besnagar Pillar Inscription?  
A) Agnimitra B) Sanghabhadra  
C) Bhanumitra D) Bhagabhadra
28. The *Vajrasana* at Bodh Gaya is attributed to the:  
A) Mauryan period B) Shaka period  
C) Kushana period D) Gupta period
29. The colossal image of the *Yaksha* Manibhadra was found at:  
A) Mathura B) Parkham  
C) Taxila D) Sarnath
30. The Shunga terracottas are:  
A) Hand made B) Partially hand made  
C) Single moulded D) Double moulded
31. *Vesara* is a:  
A) Town B) Coin type  
C) Stupa D) Temple style
32. Khajuraho artists followed the Vastushastric tradition of:  
A) Mayamata B) Arthashastra  
C) Agni Purana D) Vishvakarma school
33. Which two caves at Ajanta are *Chaityas*  
A) Caves 1 and 2 B) Caves 16 and 17  
C) Caves 18 and 20 D) Caves 19 and 26
34. The Laxman (brick) temple of Sirpur is located in the State of:  
A) Jharkhand B) Chhattisgarh  
C) Bihar D) Orissa
35. Which of the following is the earliest brick temple:  
A) Bhitargaon temple B) Maniyar Math at Rajgir  
C) Laxman temple at Sirpur D) Temple number II at Sanchi

36. The capital of the Pandyan Kingdom was:
- A) Kaveripattinam                      B) Madurai  
C) Kuravur                                D) Kanchipuram
37. *Jetthaka* in the Jatakas refers to:
- A) The head of leather workers        B) The head of a craftperson's guild  
C) The head of wood workers         D) The head of caravan merchants
38. *Nitisara* was composed by:
- A) Buddhagupta                         B) Bhasa  
C) Kamandaka                            D) Ashvaghosha
39. *Kshetrika* means:
- A) Owner of a field                      B) Cultivator of a field  
C) Slave                                    D) Tenant
40. *Mrichchhakatika* was written by:
- A) Shudraka                                B) Kalidasa  
C) Bharavi                                 D) Dharmghosha
41. Potin coins were first issued by:
- A) Mauryas                                 B) Pahlavas  
C) Guptas                                 D) Satavahanas
42. Coins of which of the following Indo-Greek Kings bears besides Greek also a Brahma legend:
- A) Agathocles                            B) Antimachus  
C) Demetrius                              D) Menander
43. The legend 'Shriman Vyaghrabala Parakramah' is found on the coins of:
- A) Kanishka                                B) Chandragupta I  
C) Chandragupta II                      D) Kumargupta
44. The famous Buddhist monk Kumarajiva died in:
- A) Cambodia                                B) Burma  
C) Afghanistan                            D) China
45. Buddhaghosha is credited with authoring *Visuddhimagga* which is a classic work on:
- A) Mahayana doctrine                    B) Theravada doctrine  
C) Hinayana doctrine                    D) Tantric doctrine
46. The *Therigatha* is:
- A) Collection of poems by Buddhist nuns  
B) Collection of poems by Buddhist monks  
C) Collection of poems by Jain nuns  
D) Collection of poems by Jain monks

47. *Natyashastra* of Bharata is a work on:
- |               |              |
|---------------|--------------|
| A) Medicine   | B) Astronomy |
| C) Dramaturgy | D) Astrology |
48. Which of the following is not an important exponent of the *Yogachara* school:
- |               |               |
|---------------|---------------|
| A) Asanga     | B) Vasubandhu |
| C) Dharmakirt | D) Nagarjuna  |
49. Kundakunda was a:
- |                                   |                                   |
|-----------------------------------|-----------------------------------|
| A) Digambara Jain monk-scholar    | B) Shvetambra Jain monk-scholar   |
| C) Mahayana Buddhist monk-scholar | D) Hinayana Buddhist monk-scholar |
50. The *Bhilsa Topes* (1854) by Alexander Cunningham is one of the earliest works on:
- |             |                   |
|-------------|-------------------|
| A) Bharhut  | B) Sanchi         |
| C) Amravati | D) Nagarjunakonda |

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Question Booklet Series : **A** Question Booklet Sr. No. **012142**

## Ph.D./M.Phil. Entrance Test – 2014

Subject: Economics

Paper-I

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O.M.R. Answer Sheet Serial No.

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1. At the mid-point of a negatively sloping straight-line demand curve the value of price elasticity of demand is:
 

A) less than one	B) more than one
C) equal to one	D) infinite
2. If the price consumption curve is horizontal at all the relevant prices, then the demand curve for the commodity is:
 

A) horizontal	B) vertical
C) positively sloping	D) a rectangular hyperbola
3. At the shut down point of a competitive firm:
 

A) $P=MC$	B) $P=AVC$
C) $P=AC$	D) $P=AFC$
4. If the demand curves for a Monopolists' commodity are identical in two markets then by practicing third degree price discrimination he can:
  - A) increase both Total Revenue & total profits.
  - B) increase Total Revenue, but not total profits.
  - C) increase Total Profits, but not total Revenue.
  - D) neither increase Total Revenue, nor Total Profits.
5. Peak-load pricing refers to the charging of:
  - A) different prices from different customers.
  - B) different prices for peak-load and off-peak load periods.
  - C) different prices in different markets.
  - D) different prices for different uses of the commodity.
6. When interest elasticity of demand for money is zero, then the LM curve is:
  - A) horizontal parallel to X-axis.
  - B) vertical parallel to Y-axis.
  - C) positively sloping.
  - D) negatively sloping.
7. In the Classical Model of employment, an increase in Money supply, under ceteris paribus conditions, will:
  - A) increase the volume of employment only
  - B) raise the price level only
  - C) raise both price level and volume of employment
  - D) decrease the volume of employment
8. Which of the following is not responsible for causing under employment equilibrium in the Keynesian Model:
  - A) downward rigidity of Money wages
  - B) downward rigidity of real wages
  - C) low interest elasticity of investment
  - D) infinite interest elasticity of demand for Money



9. The point at which Phillips curve intersects the horizontal axis indicates:
- A) Natural Rate of unemployment      B) Natural Rate of inflation  
C) Rate of cyclical unemployment      D) Rate of seasonal unemployment
10. The monetary policy is more effective in expanding employment when Investment is:
- A) highly interest elastic      B) highly interest inelastic  
C) highly income elastic      D) highly income inelastic
11. According to Modigliani hypothesis consumption is a function of:
- A) Current absolute income      B) Relative Income  
C) Past-peak income      D) Expected life-time income
12. In the Cobb-Donglas production function the sum of production elasticities gives the
- A) degree of returns to scale  
B) returns to each of the variable factors  
C) contribution of technology to production  
D) degree of substitution among factors of production
13. If the Correlation Co-efficient between X and Y is 0.80, then what will be the  $R^2$  in regression of Y upon X.
- A) 0.40      B) 0.64  
C) 0.80      D) 0.20
14. Which of the following regression models is used to estimate growth rate from time series data on a variable:
- A)  $y = a + b \text{ Time}$       B)  $y = a + b \log \text{ Time}$   
C)  $y = \log a + b \text{ time}$       D)  $\log y = a + b \text{ Time}$
15. In regression analysis Durbin-Watson test is used to detect:
- A) Multi Collinearity      B) Heteroscedasticity  
C) Auto-Correlation      D) Normality
16. Which of the following is a measure of Market Concentration and Monopoly power in a particular industry:
- A) Herfindhal Index      B) Fisher Index  
C) Chamberlain Index      D) Robinson Index
17. Which of the following economists has given an important theory of Industrial location:
- A) A. Marshall      B) Alfred Weber  
C) E. Chamberlain      D) John Hicks
18. In Mark-up pricing the price of the product fixed by the seller is equal to:
- A) Cost per unit + a profit margin per unit  
B) Variable cost per unit + a profit margin per unit  
C) Marginal cost + a profit margin per unit  
D) Fixed cost per unit + a profit margin per unit

19. Which of the following is an example of vertical merger:
- merger of car producing and tractor producing firms
  - merger of cloth producing and yarn producing firms
  - merger of milk plant and sugar factory
  - merger of cycle producing and motor cycle producing firms
20. The diversification of production pattern of a firm means that it has started:
- operating in many different markets
  - selling in many different countries
  - producing the same good at many different locations
  - producing many different products that are not related to each other
21. The theory of comparative cost advantage was first clearly stated by:
- Adam Smith
  - David Ricardo
  - J.S. Mill
  - T.R. Malthus
22. Find out the correct statement out of the following:
- depreciation of currency is decided by Govt., but devaluation occurs on its own
  - depreciation occurs in case of a currency that is on fixed exchange rate regime
  - devaluation occurs in case of a currency that is on flexible exchange rate regime
  - depreciation occurs in case of a currency that is on flexible exchange rate regime
23. Net Barter terms of trade of a country is equal to:
- index of export prices + index of import prices
  - volume of exports + volume of imports
  - value of exports + value of imports
  - balance of payments on capital account + balance of payments on current account
24. The degree of openness of an economy can be measured by:
- share of exports in total GDP
  - share of imports in total GDP
  - ratio of total external trade (Imports + Exports) to GDP
  - ratio of balance of payments to GDP
25. Which of the following countries is not a major trading partner of India:
- Japan
  - USA
  - Iran
  - U.K.
26. Who fixes the minimum cash reserve ratio of Commercial Banks:
- Central Government
  - Chairman of the Bank
  - Central Bank
  - Manager of each Bank Branch
27. That transactions demand for money is interest elastic has been theoretically shown by:
- W. J. Baumol
  - J. Tobin
  - M. Friedman
  - A. Metzler



38. Which of the following is not an essential feature of Mercantilist Thought:
- Gold and Silver are keys to wealth of a Nation
  - A strong state is necessary for prosperity
  - Free foreign trade is beneficial for the country
  - Surplus of exports over imports is beneficial for the country
39. 'Tableau Economique' is the work of:
- M. Turgot
  - John Locke
  - David Hume
  - F. Quesnay
40. The book popularly known as 'Wealth of Nations' is written by:
- J.S. Mill
  - Adam Smith
  - David Ricardo
  - T.R. Malthus
41. Which of the following is the most often used measure of economic inequality:
- Herfindhal Index
  - Coefficient of variation
  - Gini coefficient
  - Chow Index
42. The absolute poverty in a country is measured by:
- Head Count Ratio
  - Gini Coefficient
  - Lorenz Ratio
  - Theil Index
43. As per capita real income of a country increases, the share of agriculture in GDP:
- increases
  - remains constant
  - traces an inverted u-shaped curve
  - declines
44. According to Simon Kuznets the relationship between level of economic development and degree of income inequality is described by a curve that is:
- U-shaped
  - Inverted u-shaped
  - L-shaped
  - S-shaped
45. In terms of Human development which of the following four Indian States is the best:
- U.P.
  - Kerala
  - Assam
  - Orissa
46. The high growth rate of Indian economy in recent years has been largely due to high growth rate of:
- Agricultural Sector
  - Small Scale Industry
  - Large Scale Industry
  - Services Sector
47. Which of the following States is not producing adequate foodgrains to feed its own population:
- U.P.
  - Haryana
  - Punjab
  - Kerala

48. In the M4 definition of Money Supply used by Reserve Bank of India, which of the following financial assets is not included:
- A) currency with the public
  - B) current and fixed deposits in Banks
  - C) fixed deposits in Non-Bank financial institutions
  - D) saving and fixed deposits in post office Saving Banks
49. The SEBI has been set up by Govt. of India to regulate the functioning of:
- A) Call Money Market
  - B) Foreign Exchange Market
  - C) Stock Exchanges
  - D) Unorganised Money Market
50. In which of the following industries of India the Cooperative Sector has a significant presence:
- A) Cement Industry
  - B) Sugar Industry
  - C) Paper Industry
  - D) Jute Industry

**Ph.D./M.Phil. Entrance Test – 2014**

**Subject : Gandhian and Peace Studies**

**Paper-I**

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35. Who prepared the trusteeship formula for Gandhi to consider?  
A) Mahadev Desai and Pyarelal  
B) J. B. Kripalani and Jayaprakash Narayan  
C) Subhash Chander Bose and Jawaharlal Nehru  
D) K. G. Mashruwala and N. D. Parikh
36. Who named Gandhi 'the Permanent Congress President'?  
A) Jawaharlal Nehru  
B) Sarojini Naidu  
C) Sardar Patel  
D) M. A. Jinnah
37. Who said, "Gandhi ji possesses amazing inner strength which transforms ordinary people around him into brave martyrs"?  
A) Gopal Krishna Gokhale  
B) C. F. Andrews  
C) Jawaharlal Nehru  
D) Subhash Chander Bose
38. When was Poona Pact signed between Gandhi and B. R. Ambedkar?  
A) 24 September, 1932  
B) 24 September, 1930  
C) 15 August, 1932  
D) 15 August, 1930
39. Whom was Gandhi ji referring to when he talked about his political heir at the meeting of the AICC held in Wardha on January 15, 1942?  
A) Sardar Vallabh Bhai Patel  
B) Rajendra Prasad  
C) Jawaharlal Nehru  
D) Vinoba Bhave
40. What is the true meaning of Socialism according to Gandhi ji?  
A) Sarvodaya  
B) Basic Education  
C) Economic Equality  
D) Prohibition
41. Which of the following contributes the primary point of difference between Socialism of Western Conception and the Gandhian view of Socialism?  
A) Material Progress without violence  
B) Equality irrespective of the material wealth  
C) State ownership of all means of production without violence  
D) First control of the State to be followed by enforcement of equality by law
42. According to Gandhi, which is the best method of conflict resolution?  
A) Deterrence  
B) Suppression of Conflict  
C) Diplomacy  
D) Mutual Dialogue and mediation
43. Which one of the following is called a moral equivalent of war?  
A) Terrorism  
B) Guerilla War  
C) Nuclear War  
D) Satyagraha
44. Who is the author of 'India's Second Freedom'?  
A) Mahatma Gandhi  
B) Vinoba Bhave  
C) Loknayak Jayaprakash  
D) Subhash Chander Bose

45. Who amongst the following fought against apartheid and racism in South Africa?
- A) Nelson Mandela                      B) Martin Luther King (Jr.)  
C) Barack Obama                        D) General Smuts
46. Identify the environment activist:
- A) Ratan Tata                              B) Mukesh Ambani  
C) Sunderlal Bahuguna                D) Vijay Mallya
47. Gandhi started the publication of Harijan in:
- A) 1906                                      B) 1919  
C) 1933                                      D) 1910
48. 'Life and Death of Mahatma Gandhi', was written by:
- A) Louis Fischer                        B) Robert Payne  
C) J. B. Kripalani                        D) Jawaharlal Nehru
49. First book written by Gandhi was:
- A) An Autobiography or The Story of My Experiments with Truth  
B) Satyagraha in South Africa  
C) Hind Swaraj  
D) Constructive Programme
50. Anarthadandavrat is treated as a part of:
- A) Ecology                                 B) Epistemology  
C) Archaeology                            D) Sociology

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Question Booklet Series : **A** Question Booklet Sr. No. 014047

## Ph.D./M.Phil. Entrance Test – 2014

Subject : **Geography**

Paper-I

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Roll No. *In Figure* *In Words*

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O.M.R. Answer Sheet Serial No.

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Signature of the Candidate \_\_\_\_\_

**Time: 60 minutes**

**Number of Questions: 50**

**Maximum Marks : 50**

### INSTRUCTIONS

1. Write your roll No. on the Question Booklet and also on the OMR Answer Sheet in the space provided and nowhere else.
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14. **Telecommunication equipment such as pager, cellular phone, wireless, scanner, etc., is not permitted inside the examination hall. Use of calculators is not allowed.**

- Which of the following statements is **incorrect**?
  - Greek sailors used *Notus* to denote south wind.
  - Miletus town was a centre of learning and is now located in Egypt.
  - Anaximander used the word *apeiron* to symbolize the prime substance.
  - Hecataeus was not a theorist.
- Which of the following is **correct** about Eratosthenes?
  - He was born in Turkey.
  - Taprobane in his ekumene refers to Japan.
  - One of his nicknames was *pentathlos*.
  - The Obelisk he used was located at Syene.
- Kitab al-Ashkal* was written by
  - Al-Balkhi
  - Al-Masudi
  - Al-Maqdisi
  - Al-Biruni
- Which one of the following projections maintains the shape?
  - Homolographic projection
  - Stereographic projection
  - Orthographic Projection
  - Orthomorphic
- Find the **incorrect** statement.
  - Lithosphere includes crust and upper segment of mantle.
  - The contact zone between the crust and the mantle is called Moho discontinuity.
  - Cryosphere is another name of asthenosphere.
  - The crust is composed of granitic rock.
- The tropical cyclone *willy-willies* strikes in :
  - Western Atlantic
  - Western North Pacific
  - Australia
  - India
- Read the following statements
  - The place of origin of earthquake is called focus.
  - The point directly above the focus on the earth's surface is called epicenter.
  - The Richter scale measures the intensity of the earthquake.
  - The Modified Mercalli Scale ranges from I- XII.

Identify the **incorrect** statements:

  - (i), and (ii)
  - (iii)
  - (iii) and (iv)
  - (iv)
- For a time difference of one hour the longitudinal distance is equal to :
  - 15 degree
  - 30 degree
  - 45 degree
  - 60 degree
- Bermuda* is
  - North Atlantic's high pressure cell
  - North Atlantic's low pressure cell
  - Indian Ocean's high pressure cell
  - Indian Ocean's low pressure cell

10. The transport principle in Central Place Theory is denoted by :  
 A) K 3                      B) K 4                      C) K-5                      D) K=7
11. Which of the following is *not* correct about P waves in the context of earthquakes?  
 A) They are compressional.  
 B) They vibrate to and fro along the direction of propagation.  
 C) They cannot travel through liquids.  
 D) They are like sound waves.
12. Which of the following is not a type of resolution  
 A) Spatial                      B) Radiometric                      C) Temporal                      D) Visible
13. The standard atmospheric pressure at sea is  
 A) 900 mb                      B) 1000 mb                      C) 1013 mb                      D) 1023 mb
14. What is true from the following statements about Immanuel Kant:  
 A) Kant was a British philosopher.  
 B) He is famous for the concept of spatial organisation.  
 C) He rejected the teleological idea of final causes in his work *Critique of Pure Reason*.  
 D) He circumnavigated the world.
15. Which one of the following is incorrect about volcanoes:  
 A) Most of the great volcanoes formed over subduction zone are composite volcanoes.  
 B) Shield volcanoes are formed from fluid basaltic lavas.  
 C) Mount Rainer is a volcanic peak.  
 D) An active volcano is one that has not erupted in recorded history.
16. Thrust fault is formed when:  
 A) the angle of a fault plane in a compression fault is very high.  
 B) the angle of a fault plane in a compression fault is very low.  
 C) tensional stresses pull crustal rocks apart.  
 D) blocks of crustal rock move laterally
17. Which of the following is incorrect about weathering:  
 A) Mechanical weathering is also called physical weathering.  
 B) Frost action is an example of mechanical weathering.  
 C) Hydrolysis occurs due to biological weathering  
 D) Oxidation is a chemical process.
18. Davis called the most prominent not yet eroded remnants as:  
 A) peneplain                      B) monadnocks  
 C) pediplaines                      D) Berm
19. Occasionally, two or more sinkholes join to become a larger depression called :  
 A) uvala                      B) perched aquifer                      C) tower                      D) swallow hole

10. On the Fahrenheit scale, water boils at:  
 A) 100 degree F  
 B) 212 degree F  
 C) 32 degree F  
 D) -273.5 degree F
11. In which mountain range is the Khyber pass located:  
 A) Kirthar  
 B) Hindukush  
 C) Dhauladhar  
 D) Sulaiman
12. Which of the following parts of a beach profile will be farthest seaward?  
 A) Backshore  
 B) Foreshore  
 C) Nearshore  
 D) Berm
13. Reverse fault is an example of:  
 A) Compressional fault  
 B) Tensional fault  
 C) Transverse fault  
 D) Transform fault
14. Which of the following is incorrect:  
 A) Thunderstorms are common in both the low and middle latitudes.  
 B) The life cycle of a thunderstorm begins with the onset of the convection process.  
 C) Cumulonimbus clouds are produced in the mature stage.  
 D) Orographic precipitation is due to thunderstorms.
15. Which of the following is not a planetary wind:  
 A) Trade wind  
 B) Westerlies  
 C) Polar winds  
 D) Monsoon
16. Which of the following is incorrectly matched?  
 A) Kudremukh : Karnataka  
 B) Bailadila : Chattisgarh  
 C) Kurnool : Tamil Nadu  
 D) Panna : Madhya Pradesh
17. Which of the following are true regarding *Jhum* cultivation in India:  
 I. It is largely practiced in North east India  
 II. It is referred to as slash and burn technique  
 III. In it, the fertility is exhausted in few years  
 A) I, II and III  
 B) II and I, III  
 C) I  
 D) I and III

28. Which of the following denotes the correct order of states in terms of size of population from the largest to the smallest?
- A) Uttar Pradesh, Maharashtra, West Bengal, Bihar  
 B) Uttar Pradesh, Maharashtra, Bihar, West Bengal  
 C) Maharashtra, Uttar Pradesh, Bihar, West Bengal  
 D) Uttar Pradesh, Bihar, Maharashtra, West Bengal
29. The headquarters of NATMO is located at
- A) Hyderabad B) Kolkata C) Dehradun D) Pune
30. Form lines are a type of:
- A) Contours B) Hachures C) Spot height D) Bench mark
31. Which of the following is an example of measures of central locations:
- A) Mean B) Median C) Mode D) Mean centre
32. Which of the following is a technique of crop combinations:
- A) Weaver's B) Von Thunen's C) Weber's D) Christaller's
33. Which of the following tribes is the largest in numerical strength:
- A) Bhil B) Santhal C) Gonds D) Meena
34. How many satellites are minimum requirements to get 3 D information through GPS
- A) 2 B) 3 C) 4 D) 5
35. PSLV C-23 was used to launch
- A) SPOT -7 B) LANDSAT C) Quickbird D) Cartosat
36. Which of the following is **not** a scale of measurement:
- A) Nominal B) Ordinal C) Graphic D) Interval
37. When was the latest Map Policy of India announced?
- A) 2005 B) 2006 C) 2007 D) 2004
38. Which one of the following is commonly known as *step migration*:
- A) Rural to urban migration B) Urban to urban migration  
 C) Rural to rural migration D) Urban to rural migration
39. The scheduled tribe population in 2011 census was \_\_\_\_\_ per cent of the total population of India:
- A) 8.2 B) 8.4 C) 8.02 D) 8.6



40. Match the following.

Places		State	
i)	Riasi	a.	Odisha
ii)	Koraput	b.	Assam
iii)	Dighoi	c.	West Bengal
iv)	Asansol	d.	Jharkhand
		e.	Jammu & Kashmir

	(i)	(ii)	(iii)	(iv)
A)	e	a	b	d
B)	d	a	b	e
C)	e	a	b	e
D)	e	c	b	a

41. In which year, the Indian States were reorganized on the basis of language:

- A) 1947      B) 1952      C) 1956      D) 1961

42. Which of the following is not a GIS package:

- A) Arc GIS      B) Mapinfo      C) Idrisi      D) Netscape

43. In which state of India is Angul, the largest aluminium plant in Asia located:

- A) Gujarat      B) Jharkhand      C) Odisha      D) Chhattisgarh

44. What is **not** true about Child sex ratio as per 2011 census in India?

- A) Chhattisgarh has the highest child sex ratio.  
 B) Haryana has the lowest child sex ratio.  
 C) Kerala has the highest and Punjab the lowest child sex ratio.  
 D) The child sex ratio in India was 919.

45. The highest level of decision making body in India is:

- A) Planning commission      B) Inter-state Council  
 C) National Development Council      D) Prime Minister

46. Which of the following is an example of Command Area Development:

- A) Indira Gandhi canal      B) Damodar Valley Corporation  
 C) Bhakra Nangal Project      D) Western Ghats Development

47. Read the following statement about urbanization in India:

1. The proportion of urban population in five union territories and two states is above 50 per cent.
2. The highest proportion of urban population after Goa and Mizoram was recorded in Kerala.
3. The density of population, for defining an urban centre is 400 persons per sq. km besides other criteria.
4. The least urbanized state in India after Himachal Pradesh is Bihar.

Which of the above statements is/ are incorrect?

- A) 2, 3                      B) 3, 4                      C) 2 only                      D) 4 only

48. Match the following

	Satellites			Launch year
	i)	Landsat		a) 1972
	ii)	SPOT		b) 1986
	iii)	IRS		c) 1988
		i)	ii)	iii)
A)	a)	b)	c)	
B)	b)	a)	c)	
C)	c)	a)	b)	
D)	c)	b)	a)	

49. Which of the following is a method of slope analysis:

- A) King's                      B) Raisz and Henry                      C) Mercator's                      D) Strahler's

50. The Kelvin degree is identical in size to the Celsius degree except that water freezes at 273 degree Kelvin and boils at:

- A) 100 degree K                      B) 373 degree K  
C) 173 degree K                      D) 73 degree K

Question Booklet Series : **A** Question Booklet Sr. No. **015132**

## Ph.D./M.Phil. Entrance Test – 2014

**Subject : History**

**Paper-I**

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O.M.R. Answer Sheet Serial No.

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EACH QUESTION CARRIES 1 MARK. THERE IS NO NEGATIVE MARKING

1. The term 'agrahara' in ancient times referred to:
  - A. Store for weapon
  - B. royal donation of village or land to Brahmins
  - C. agricultural implement
  - D. royal residence
  
2. Dvija means :
  - A. twice born
  - B. customary dues
  - C. ruler
  - D. chakravartin
  
- 3. Eripatti is specified land from which:
  - A. Ruler takes all revenues
  - B. travellers are maintained
  - C. revenues are used for irrigation tanks
  - D. Brahmanas are maintained
  
- 4. Mandalam, nadu, taniyur and kurram are :
  - A. administrative units
  - B. merchant guilds
  - C. artisan groups
  - D. state officials
  
- 5. Yavana in Indian sources refers to people of:

- A. north west region
  - B. Malabar coast
  - C. western Asia
  - D. Europe
- 6. The Aranyakas were :
- A. Vedic texts composed by forest hermits
  - B. customs officers
  - C. officers of the state
  - D. Texts for rituals of coronation
- 7. Kharoshti was the :
- A. script in north west India derived from Aramaic
  - B. texts describing sacrifice
  - C. royal storehouses
  - D. revenue from a village or land donated to Brahmins
- 8. Kahapana and Kakani were:
- A. sages in the time of Asoka
  - B. types of coins
  - C. authors of ancient texts
  - D. types of cloth
- 9. Nanadeshi refers to:
- A. artisans of the locality
  - B. rulers in south India

- C. a powerful merchant guild
- D. cultivators from the vicinity

- 10. A political theory where in a state of anarchy the strong devour the weak is:

- A. mandala
- B. Mahakshatrapa
- C. Mimamsa
- D. Matsyanyaya

- 11. Yoga, Mimamsa, Vedanta refer to:

- A. some of the major schools of philosophy in ancient India
- B. texts of the Mauryan period
- C. asanas
- D. scholars of the Vedic time

- 12. Watan jagir meant :

- A. hereditary lands
- B. gift of Mughal emperor
- C. jagir for special services
- D. land assigned for sustenance

- 13. Which of the following was NOT part of the administrative units in the early 19<sup>th</sup> century Punjab:

- A. sarkar
- B. tappa
- C. suba

- D. mauza
- 14. The term 'dal khalsa' referred to :
  - A. a group of soldiers
  - B. combined forces of the Sikhs
  - C. additional troops
  - D. langar given to the Sikhs.
- 15. Jagir was a :
  - A. personal property
  - B. assignment of land in lieu of salary
  - C. customary land
  - D. movable property
- 16. Masand was a person :
  - A. appointed by the Guru to look after the affairs of the local congregation
  - B. collecting taxes imposed on Sikhs
  - C. who collected taxes for the state
  - D. to mediate between the state and the Sikhs.
- 17. Panchayat refers to:
  - A. a local assembly of the representatives of a caste or brotherhood
  - B. a government official
  - C. additional tax on some groups
  - D. any five specified items
- 18. Qanungo may be defined as:

- A. a special category of zamindars
- B. state officers
- C. cultivating persons
- D. hereditary keepers of revenue records at the pargana level

- 19. Sangat referred to the :

- A. people of a village
- B. fixed number of revenue payments
- C. assembly or congregation of Sikhs
- D. revenue official

- 20. Batai was a method of assessment based on:

- A. cash per fixed unit area
- B. estimate of crop
- C. crop sharing
- D. forced collection of revenue

- 21. ' zimmi ' meant:

- A. chiefs
- B. code of conduct for Muslims
- C. additional taxes to state
- D. non Muslims who paid jiziya

- 22. Tabligh refers to:

- A. disciples of the Prophet
- B. propagation of Islam



- C. special military of the ruler
- D. Ceremonial sword
- 23. Khanqah was the:
  - A. establishment of Sufi shaikh
  - B. resting place of Emperor
  - C. residence of administrator
  - D. office of the local governor
- 24. Sitala was :
  - A. the goddess of small pox
  - B. the royal tanks
  - C. a sacred pool
  - D. head of the temple
- 25. Gurmata means:
  - A. decision of Sikh congregation in presence of the Granth Sahib
  - B. order of Guru's family
  - C. the mother of the Guru
  - D. decision of a select group of Sikh leaders
- 26. Silsilah meant a:
  - A. official order of the ruler
  - B. tomb
  - C. checkpost
  - D. Sufi order

- 27. Khutba was a:
  - A. pronouncement made in Friday mosques regarding the ruler of the day
  - B. religious text
  - C. state document
  - D. ceremonial food
- 28. Ulama refers to :
  - A. a caste group
  - B. learned in Islamic theology and law
  - C. medical men
  - D. Ruler's close aide
- 29. Bigha refers to :
  - A. a kind of tobacco
  - B. a skilled worker
  - C. measure of land area
  - D. hunter of lions
- 30. Land out of which jagirs were assigned by the Mughals was called:
  - A. zor talab
  - B. sarkar
  - C. khalisa
  - D. paibaqi
- 31. Ganj was a market for:
  - A. special manufactures

- B. food grains
  - C. animals
  - D. local produce
- 32. Damdupat was a rule which specified that:
- A. raw material advances be given to artisans
  - B. commissions be fixed to agents
  - C. custom duties were halved
  - D. a debtor was not liable to pay interest exceeding the principal
- 33. 'Rangrez or rangari' was a term used for the person who:
- A. made tools for weaving cloth
  - B. stretched and measured cloth
  - C. did zardozi work
  - D. dyed cloth in different colours
- 34. Jamabandi was a settlement:
- A. between revenue collectors
  - B. of the amount of revenue assessed upon an estate
  - C. of three cultivators
  - D. of collective revenue
- 35. Taccavi was a loan given to:
- A. pay taxes
  - B. cultivators for productive purposes
  - C. travel to sacred site

D. merchants as advance for goods

36. The Punjab Land Alienation Act 1900 laid down that:

A. land could only be sold to agricultural castes

B. bonded labour was permitted

C. no land could be sold

D. only government could buy land

37. Ham Hindu Nahin was written by:

A. Lala Lajpat Rai

B. Sardar Sardul Singh

C. Giani Zail Singh

D. Bhai Kahan Singh Nabha

38. Shuddhi was a:

A. purification ceremony of the Arya Samaj

B. religious ritual of the higher castes

C. personal ritual

D. ritual after conducting death ceremonies

39. The colonial authorities devised the Colonization Bill of 1906 because it:

A. transferred ownership to peasants

B. dealt with problems of revenue collection

C. tackled corruption

D. retained government ownership of land in canal colonies

- 40. In the early 19<sup>th</sup> century Punjab a chakdar acquired land rights through
  - A. clearing of jungle
  - B. force
  - C. sinking a well
  - D. sale of land
- 41. In 1904 V D Savarkar organized a secret society called:
  - A. Rashtra Dal
  - B. Bengal Tigers
  - C. Abhinav Bharat
  - D. Akhand Bharat
- 42. The Non Cooperation Movement was called off by Gandhiji due to:
  - A. hartals
  - B. bonfires of foreign goods
  - C. participation of policemen
  - D. Chauri Chaura incident
- 43. Karewa was a custom that supported:
  - A. adoption of orphans
  - B. marriage in same village
  - C. remarriage of widow to deceased husband's brother
  - D. remarriage into lower caste
- 44. The Mappila resistance in 1921 was related to:
  - A. sharing of power in state assembly

- B. grievances of tenants
- C. increase in custom duties
- D. imposition of property tax

- 45. The 'Pakistan Resolution' was passed at :

- A. Delhi in 1939
- B. Shimla in 1937
- C. Lahore in 1940
- D. Calcutta in 1944

- 46. The Phulmoni Das case of 1890 was related to the issue of:

- A. widow remarriage
- B. age of consent
- C. female infanticide
- D. sati

- 47. The denomination of 'anna' meant:

- A.  $1/50^{\text{th}}$  of a rupee
- B.  $1/20^{\text{th}}$  of a rupee
- C.  $1/16^{\text{th}}$  of a rupee
- D.  $1/2$  a rupee

- 48. The Anand Marriage Bill was meant to:

- A. give legal recognition to the Sikh ceremony of marriage
- B. make inter caste marriages legal
- C. fix the age for legal marriage

D. allow for marriages without consent of parents

- 49. The Rakabganj issue was related to:

A. control of SGPC over the gurdwara

B. demolition of the outer wall of the gurdwara

C. takeover of the gurdwara

D. selection of new management

- 50. The daily of the Akali Dal was called:

A. Roznamcha

B. Vir Pratap

C. Akali

D. Jathedar

Question Booklet Series : **A** Question Booklet Sr. No. **016047**

## Ph.D. Entrance Test – 2014

Subject : Mass Communication

### Paper-I

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O.M.R. Answer Sheet Serial No.

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1. Which of the following is not a graphic or diagrammatic representation?
 

A) Pie chart	B) Table
C) Scatter plot	D) Ogive
2. Shannon and Weaver are associated with which communication theory/model?
 

A) Uses and Gratifications Theory	B) Spiral of Silence Model
C) Diffusion of Innovations <i>Theory</i>	D) Mathematical Model
3. 'Control Group' is a term used in
 

A) Case Study	B) Survey
C) Historical Research	D) Lab Experiment
4. Which media advisor authored the book, 'The Accidental Prime Minister'?
 

A) Ashok Tandon	B) Sanjaya Baru
C) Harish Khare	D) H.K. Dua
5. What is the name of the TV show hosted by the Editor-in-Chief of The Indian Express?
 

A) We the People	B) Aapki Adalat
C) Walk the Talk	D) To the Point
6. Under which segment of the marketing mix does advertising and public relations fall?
 

A) Product	B) Price
C) Place	D) Promotion
7. Inductive logic proceeds from
 

A) Particular to general	B) Particular to particular
C) General to particular	D) General to general
8. Mean, median, mode are
 

A) Measures of dispersion	B) Measures of central tendency
C) Methods of sampling	D) None of the above
9. WhatsApp was recently bought by the founder of
 

A) Twitter	B) Facebook
C) Google	D) Yahoo
10. Gonzo Journalism was a term first used to describe the work of
 

A) Benjamin Day	B) Hunter S. Thompson
C) William Randolph Hearst	D) Joseph Pulitzer

11. Which data collection tool lends itself more easily to qualitative analysis?
- A) Structured questionnaire      B) Lab experiments  
C) Structured observation      D) In depth Interview
12. Article 19 of the United Nations Universal Declaration of Human Rights is to do with
- A) Gender Equality      B) Life and Liberty  
C) Speech and Expression      D) Food Security
13. "A social fact is a meaning and value laden statement", is a statement associated with which school of thought
- A) Reflexive school      B) Deterministic school  
C) Positivist school      D) Naturalistic school
14. Which of the following methods falls under probability sampling procedure?
- A) Purposive sampling      B) Volunteer sampling  
C) Simple random sampling      D) Convenience sampling
15. One of the following search engines is exclusively meant for science information
- A) Google      B) SCIRUS  
C) Yahoo      D) Alta Vista
16. Questionnaire is a
- A) Research method      B) Data analysis technique  
C) Data collection tool      D) None of the above
17. When two variables either increase or decrease together, it is referred to as
- A) Positive correlation      B) Negative correlation  
C) Standard deviation      D) Variance
18. 94.3 My FM is owned by
- A) Reliance Anil Dhirubhai Ambani Group  
B) Entertainment Network (India)  
C) Living Media India  
D) Synergy Media Entertainment
19. Reliability is synonymous with
- A) Consistency      B) Validity  
C) Believability      D) None of the above





39. Who is not from the advertising industry?
- A) Prahlad Kakkar                      B) Prasoon Joshi  
C) Vir Sanghvi                          D) Alyque Padamsee
40. Which section of the Information Technology Act deals with punishment for the offence of sending offensive, misleading, intimidating messages/emails by means of a computer resource or a communication device?
- A) Section 7 A                              B) Section 66 A  
C) Section 52 A                             D) Section 67 A
41. Which level of measurement does not have a numerical significance?
- A) Nominal level of measurement      B) Ordinal level of measurement  
C) Interval level of measurement       D) Ratio level of measurement
42. Sources of researchable problems can include
- A) Researchers' own experiences       B) Practical issues that require solutions  
C) Theory and past research              D) All of the above
43. The 'Goodness of Fit' test is also referred to as
- A) Pearsons R                                B) Chi Square  
C) Spearman's rho                          D) Kendall's tau
44. The Information and Broadcasting Minister in UPA-II was
- A) Manish Tewari                            B) Ambika Soni  
C) Kapil Sibal                                D) Milind Deora
45. Which of the principles given below should not be considered while constructing a questionnaire
- A) Avoid leading questions  
B) Avoid double-barreled questions  
C) Avoid double negatives  
D) Avoid using multiple items to measure a single construct
46. 'AbkibaarModisarkar' was a term coined by which ad agency?
- A) O&M                                        B) SOHO Square  
C) JWT    D) Rediffusion DY&R
47. The equivalent of the ASCI for the public relations industry is the
- A) PRSI                                         B) CBI  
C) PCI    D) TRAI

48. Which one is not a part of Semiotic Analysis
- |               |                |
|---------------|----------------|
| A) Pragmatics | B) Syntactics  |
| C) Semantics  | D) Cybernetics |
49. Sakshat is a development project in the sector of
- |              |                |
|--------------|----------------|
| A) Education | B) Commerce    |
| C) Health    | D) Agriculture |
50. The use of multiple observers to crosscheck observations to make sure the investigators agree with about what took place is known as
- |                            |                               |
|----------------------------|-------------------------------|
| A) Interpretative validity | B) Researcher bias            |
| C) Multiple operationalism | D) Investigator triangulation |

Question Booklet Series : **A** Question Booklet Sr. No.

017111

## Ph.D./M.Phil. Entrance Test – 2014

Subject : Political Science

Paper-I

**Important:** Please consult your Admit Card/Roll No. slip before filling your Roll Number on the Test Booklet and Answer Sheet.

Roll No. *In Figure* *In Words*

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O.M.R. Answer Sheet Serial No.

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Signature of the Candidate \_\_\_\_\_

Time: 60 minutes

Number of Questions: 50

Maximum Marks : 50

### INSTRUCTIONS

1. Write your roll No. on the Question Booklet and also on the OMR Answer Sheet in the space provided and nowhere else.
2. Enter the Code No. of Question Booklet on the OMR answer Sheet. Darken the corresponding bubbles with **Black Ball Point/Black Gel Pen**.
3. Do not make any identification mark on the Answer Sheet or Question Booklet.
4. Please check that this Question Booklet contains 50 questions. In case of any discrepancy, inform the Assistant Superintendent within 10 minutes of the start of test.
5. Each question has four alternative answer (A, B, C, D) of which only one is correct. For each question, darken only one bubble (A or B or C or D), whichever you think is the correct answer, on the Answer Sheet with **Black Ball Point/Black Gel Pen**. **There shall be no negative marking for wrong answers.**
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8. If you want to change an already marked answer, erase the shade in the darkened bubble completely.
9. For rough work only the blank sheet at the end of the Question Booklet be used.
10. The Answer Sheet is designed for computer evaluation. Therefore, if you do not follow the instructions given on the Answer Sheet, it may make evaluation by the computer difficult. **Any resultant loss to the candidate on the above account, i.e. not following the instructions completely, shall be of the candidate only.**
11. After the test, hand over the Question Booklet and the Answer Sheet to the Assistant Superintendent on duty.
12. In no case the Answer Sheet, the Question Booklet, or its part or any material copied/ noted from this Booklet is to be taken out of the examination hall. Any candidate found doing so would be expelled from the examination.
13. A candidate who creates disturbance of any kind or changes his/her seat or is found in possession of any paper possibly of any assistance or found giving or receiving assistance or found using any other unfair means during the examination will be expelled from the examination by the Centre Superintendent/Observer whose decision shall be final.
14. **Telecommunication equipment such as pager, cellular phone, wireless, scanner, etc., is not permitted inside the examination hall. Use of calculators is not allowed.**

- Who is the author of 'The Origins of Totalitarianism'?
  - Herbert Marcuse
  - Michael Foucault
  - Hannah Arendt
  - Karl Popper
- 'A spectre is haunting Europe'. Which book begins with this line?
  - The Manifesto of the Communist Party
  - One Dimensional Man
  - The Philosophy of Right
  - Political Liberalism
- The Human Development Reports are brought out by which agency?
  - The World Bank
  - International Monetary Fund
  - OXFAM
  - UNDP
- Which of the following misrepresents neo-liberalism?
  - Neo-liberalism has been articulated through privatization.
  - Neo-liberalism has been articulated through fiscal austerity.
  - Neo-liberalism has not percolated through to the local scale.
  - Neo-Liberalism has been articulated through export-oriented production.
- Which of the following misrepresents the concept of 'Balance of Power'
  - One or more states' power being used to balance that of another state or group of states
  - Any ratio of power capabilities between states and alliances
  - Counter balancing coalitions repeatedly formed in history to prevent one state from becoming predominant
  - Using international law and international organizations to balance the power of another state or group of states.
- Which of the following statements accurately explains the notion of Hegemony?
  - Hegemony is the holding by one state of a preponderance of power in international system that it can single-handedly dominate the rules and arrangements by which international political and economic relations are conducted.
  - Hegemony is the holding by a group of states of a preponderance of power in international system that they can jointly dominate the rules and arrangements by which international political and economic relations are conducted.
  - Hegemony is the holding by a group of international organizations of preponderance of power in international system that they can dictate the rules and arrangements by which international political and economic relations are conducted.
  - None of the above



7. Which of the following statements misrepresents Immanuel Wallerstein's World Systems Theory?
- A) World-systems and not nation-state are the basic unit of social analysis
  - B) Existing disciplinary boundaries in social sciences do not make sense
  - C) World-systems analysis is a sub-division of social sciences
  - D) Capitalism's existence as a system for 500 years does prove it will last forever
8. Liberal pluralist view of constitution do not believe in the following
- A) authoritative allocation of policies and decisions,
  - B) capability of society to articulate their interests
  - C) uniformity of interests in society
  - D) None of the above
9. Robert Putnam's work on social capital is with reference to which country?
- A) Germany
  - B) Italy
  - C) France
  - D) United Kingdom
10. Which of the following is exclusively a committee of the lower house
- A) Committee on Public Undertakings
  - B) Committee on Delegated Legislation
  - C) Estimates Committee
  - D) Committee on Assurances
11. Who moved the objectives resolution in the Constituent Assembly?
- A) B R Ambedkar
  - B) Jawaharlal Nehru
  - C) Sardar Vallabhai Patel
  - D) Rajendra Prasad
12. The institution of Lokayukta was created for the first time by the state of
- A) Punjab
  - B) Bihar
  - C) Orissa
  - D) Maharashtra
13. Who wrote "Annihilation of Caste?"
- A) M K Gandhi
  - B) B R Ambedkar
  - C) Kanshi Ram
  - D) Ram Manohar Lohia
14. Who characterized Indian Union as "federation with a centralizing tendency"
- A) Ambedkar
  - B) K.C. Wheare
  - C) Granville Austin
  - D) Ivor Jennings
15. The Election Commission of India has
- A) Quasi- Judicial Power
  - B) Constitutional Power
  - C) Advisory Power
  - D) Regulatory Power
16. Who among the following mooted the idea that India was a 'soft state' and ill-equipped to carry out its promises?
- A) Samir Amin
  - B) Gunnar Myrdal
  - C) Andre Gunders Frank
  - D) Edward Said.

17. Who made the distinction between negative and positive liberty  
A) Jeremy Bentham                      B) J.S. Mill  
C) Isaiah Berlin                         D) T.H.Green
18. Which of the following is not a feminist theorist  
A) Simon De Beauvoir                  B) Germaine Greer  
C) Wollen Croft                         D) Hannah Arendt
19. What is the mane of Lucian Pye's work on political culture  
A) Civic culture  
B) Politics, Personality and Nation Building  
C) Democracy and Trust  
D) None of the above.
20. Kymlicka's theory of citizenship is based on  
A) Culturally differentiated rights  
B) One person one vote  
C) Weightage in voting for the minorities  
D) The philosophy of Uniform citizenship
21. Whom among the following was not a Chief Minister of a State in India?  
A) K Karunakaran                        B) Devi Lal  
C) Jagivan Ram                         D) A R Antulay
22. From where did the modern state emerge  
A) Asia                                      B) Latin America  
C) Europe                                  D) America
23. Who propagated the idea of cultural revolution?  
A) Lenin                                     B) Stalin  
C) Marx                                     D) Mao-Tse Tung
24. Which of the following amendments curbed political defection  
A) 42<sup>nd</sup>                                        B) 52<sup>nd</sup>  
C) 70<sup>th</sup>                                        D) 62<sup>nd</sup>
25. Who is the author of 'Political Economy of Development in India'?  
A) Sudipta Kaviraj                        B) Amartya Sen  
C) Hamza Alavi                          D) Pranab Bardhan
26. The main base of BSP is in:  
A) Punjab                                  B) Delhi  
C) Haryana                                 D) Uttar Pradesh
27. What method does Rawls adopt to arrive at his theory of justice?  
A) Historical Materialism                B) Felificic calculus  
C) Social contract                        D) Dialectics
28. Which two thinkers does Karl Popper call the enemies of open society?  
A) Plato and Marx                        B) Hobbes and Mill  
C) Locke and Aristotle                  D) Tocqueville and Augustine

29. Bentham was a proponent of which theory of rights?  
A) Natural rights  
B) Legal Rights  
C) Divine Rights  
D) None of the above
30. Following Articles was incorporated in the Constitution of India by the Constituent Assembly for the promotion of international peace and security?  
A) Article 51  
B) Article 44  
C) Article 39  
D) Article 265
31. In 1994 GATT negotiations were aimed at  
A) Free Trade  
B) Zero tariffs on imports  
C) Inter-state exchange of tariff concession  
D) Imposing of economic sanctions on terrorist states
32. Before 1994, the European Union was known as  
A) OSCE  
B) EAPCC  
C) ECSC  
D) EC(European community)
33. The issue of Kyoto Conference was related to  
A) Terrorism  
B) Prohibition of nuclear tests  
C) Climatic Change  
D) None of the above.
34. An easing of tension between the states can be termed as  
A) Delegation  
B) Declaration  
C) Demarche  
D) Détente
35. Who wrote the book, *How Europe underdeveloped Africa*  
A) Walter Rodney  
B) Ricardo  
C) Alvin Hansen  
D) Schumpeter
36. Which school of thought believed that capital formation was the basic feature of development?  
A) Neo-Classical Theory  
B) Classical Theory  
C) Economic Maturity Theory  
D) Entrepreneur Theory
37. Which theorist of nationalism has written the book 'Imagined Communities'  
A) Anthony Smith  
B) Benedict Anderson  
C) Ernest Gellner  
D) Paul Brass
38. Which of the following is a neorealist theorists of International Relations.  
A) Kenneth Waltz  
B) James Rosenau  
C) Hans Morgenthau  
D) Kenneth Boulding
39. Which of the following is a dependency theorists?  
A) Adam Smith  
B) Samuel Huntington  
C) Immanuel Wallerstein  
D) Andre Gunder Frank
40. Who has coined the term 'Congress System' to explain the party system in the first years of Indian independence?  
A) Atul Kohli  
B) Paul Brass  
C) Myron Weiner  
D) Rajani Kothari

41. Criterion for a regional party to be recognized as a national party is
- A) To be recognized in at least 3 states
  - B) To be recognized in at least 4 states
  - C) To get 1/10th of the seats in Lok Sabha
  - D) To get 1/10th of the seats in the Parliament
42. Christianity looked at 'time' as
- A) Cyclical
  - B) Linear
  - C) Repetitive
  - D) static
43. The term new politics means
- A) New style of activism
  - B) New parties
  - C) New regimes
  - D) New leaders
44. Robert Putnam's study on political culture is based on which country
- A) Germany
  - B) Poland
  - C) Brazil
  - D) Italy
45. What was key concern of Bhoodan or Gramdan movement
- A) provide land to the tillers
  - B) provide accomodation to the miserable
  - C) to eleminate the possibility of vilent revolutin
  - D) to bring about social reconstruction
46. The judicial review in the Indian Constitution is based on
- A) Procedure established by law
  - B) Due process of law
  - C) Rule of law
  - D) Precedents and conventions
47. Pressure group is distinct from a political party in as much as it does not directly
- A) Contest election
  - B) Finance a candidate
  - C) Contest elections
  - D) Resort to mobilization of opinion
48. Which one of the following Prime Ministers did not head a minority government?
- A) I.K.Gujral
  - B) V.P.Singh
  - C) Chandrasekhar
  - D) Morarji Desai
49. Birsa Munda was associated with tribal struggle of
- A) North East Region
  - B) Jharkhand
  - C) Nagar Division
  - D) Deccan
50. The Non-Governmental Organizations are known as
- A) state actors
  - B) non-state actors
  - C) regimes
  - D) social service organisations

Question Booklet Series : **A** Question Booklet Sr. No. **018116**

## Ph.D. Entrance Test – 2014

Subject : Psychology

Paper-I

**Important:** Please consult your Admit Card/Roll No. slip before filling your Roll Number on the Test Booklet and Answer Sheet.

Roll No.

*In Figure*

*In Words*

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O.M.R. Answer Sheet Serial No.

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Signature of the Candidate \_\_\_\_\_

**Time: 60 minutes**

**Number of Questions: 50**

**Maximum Marks : 50**

### INSTRUCTIONS

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1. An experimenter who incorrectly rejects the null hypothesis commits which of the following kinds of error?
 

A) A systematic error	B) A random error
C) A Type I error	D) A Type II error
  
2. The terms "purposive behaviorism" and "sign gestalt learning" are used to describe the learning theory developed by which of the following psychologists?
 

A) John B. Watson	B) Clark Hull
C) Edward C. Tolman	D) B.F. Skinner
  
3. Object relations therapy is most closely related to
 

A) cognitive-behavioral techniques	B) psychoanalysis
C) client-centered therapy	D) modeling
  
4. In an experiment, a pigeon was rewarded every twenty seconds regardless of the pigeon's behavior. By the end of the experiment, the frequency of the pigeon's grooming responses had significantly increased. Which of the following phenomena describes this result?
 

A) Generalization	B) Superstitious behavior
C) Discrimination	D) Classical conditioning
  
5. Prosopagnosia results in an inability to
 

A) identify colors
B) distinguish parallel lines
C) detect movement
D) detect individual differences among faces
  
6. In the studies by Stanley Milgram and his colleagues, which of the following factors tended to elicit a relatively low level of obedience?
 

A) The study used randomly selected participants.
B) The study was conducted in a university laboratory.
C) The "learner" (victim) presumably received a slight shock.
D) An authority figure (experimenter) in another room gave instructions to the "teacher" (participant).
  
7. Which of the following is an example of recognition testing?
 

A) "Is this word one of the words I showed you earlier?"
B) "What did you have for lunch yesterday?"
C) "What is the state capital of Karnataka?"
D) "On the list I showed you earlier, which words began with the letter 'm'?"
  
8. A 40-item vocabulary test was administered to a group of students. A second, similar test of vocabulary terms was administered to this same group of students approximately one week later. The researcher reported that the correlation between these two tests was  $r = .90$ . Which of the following can be stated regarding the two tests?
 

A) They have strong reliability.	B) They have weak reliability.
C) They have strong divergent validity.	D) They have weak content validity.

9. On an attitude scale, the consecutively ordered scale points 1 through 7 represent different degrees of attitude strength, but the distance between any two adjacent scale points remains undetermined. Given what is known, this scale can be said to have the properties of
- A) a ratio scale  
B) a nominal scale  
C) a multidimensional scale  
D) an ordinal scale
10. The influence of expectation on perception is an example of which of the following?
- A) Top-down processing  
B) Weber's law  
C) Linear perspective  
D) Interposition
11. A marketing company rewards associates with a bonus for every 15 surveys they complete. Which of the following schedules of reinforcement best describes this pay arrangement?
- A) Fixed interval  
B) Fixed ratio  
C) Variable interval  
D) Variable ratio
12. A researcher needs an equal number of participants from each of several age-groups to test for developmental differences. Which of the following sampling procedures would be best to use if results are to be generalizable?
- A) Simple random sampling  
B) Stratified random sampling  
C) Non-random sampling  
D) Simple convenience sampling
13. Encoding of new memories is most likely to be disrupted by damage to the
- A) left frontal lobe  
B) hippocampus  
C) hypothalamus  
D) corpus callosum
14. Implementation of a double-blind procedure would be most difficult in studying the behavioral effects of which of the following?
- A) A new antidepressant medication  
B) Subliminal perception audiotapes  
C) Transient magnetic fields  
D) Psychotherapy
15. On Tuesday, Sam had fish for dinner. On Wednesday, he did not think about Tuesday's dinner at all. On Thursday, he thought about how good the fish had tasted on Tuesday. On Wednesday, therefore, Sam's memory of Tuesday's dinner was represented in
- A) short-term memory  
B) episodic memory  
C) procedural memory  
D) sensory memory
16. Participants were presented with a list of 24 names. The list was composed of 12 famous women and 12 men who were less well known. Upon later testing, the participants reported that there were more women on the list than men. This finding demonstrates which of the following?
- A) The alignment heuristic  
B) The availability heuristic  
C) Effects of gender stereotypes on memory  
D) The representativeness heuristic

17. Which of the following best describes intellectual changes that typically occur in older people?
- A) Strategies for problem solving become more flexible and unconventional.
  - B) Divergent thinking increases and convergent thinking decreases.
  - C) Crystallized intelligence remains stable or increases slightly.
  - D) Ability to memorize meaningful information decreases, but rote recall ability increases.
18. According to most cognitive therapists, psychological problems are most likely to be associated with which of the following?
- A) Unconscious conflictual beliefs
  - B) Low intelligence
  - C) Inflexible maladaptive thoughts
  - D) Incomplete schema formation
19. According to Erik Erikson's theory, the process of development occurs
- A) in three cognitive stages that are completed by five years of age
  - B) throughout life in a series of psychosocial stages
  - C) as a consequence of biological maturation
  - D) through increasing gains in moral reasoning
20. When psychology first emerged as a separate discipline, it was distinguished from philosophy primarily by its emphasis on
- A) skepticism
  - B) materialism
  - C) deductive logic
  - D) empirical data
21. Which of the following concepts would create the most cognitive dissonance for a person with strong just-world beliefs?
- A) An uninvolved bystander
  - B) A hard-working winner
  - C) A convicted felon
  - D) An innocent victim
22. Which of the following personality tests is derived mainly from the personality theory developed by Carl Jung?
- A) Myers-Briggs Type Indicator (MBTI)
  - B) Sixteen Personality Factor Questionnaire (16PF)
  - C) Minnesota Multi-phasic Personality Inventory-2 (MMPI-2)
  - D) Bem Sex-Role Inventory (BSRI)
23. While a board of directors was attempting to make a major decision, all members felt pressure to support the group's views and to reject ideas that were contrary to the opinions of the group. This example best illustrates
- A) group polarization
  - B) group cohesiveness
  - C) groupthink
  - D) social facilitation
24. Which of the following depth cues would be LEAST useful to an artist attempting to create an impression of depth in a flat painting?
- A) Accommodation
  - B) Linear perspective
  - C) Interposition
  - D) Breadth in the visual field



25. Research on problem solving indicates that heuristic search strategies, compared with algorithmic strategies, are
- A) slower  
B) more efficient  
C) more exhaustive  
D) more accurate
26. According to the drive-reduction theory of Clark Hull, motives can be described as a search for homeostasis. Which of the following best supports this view?
- A) Monkeys exert substantial effort to puzzle out how to open latches attached to a wooden board.  
B) Drug addicts require ever increasing doses to produce a "high."  
C) Laboratory animals will seek out saccharin, a sweet substance with no nutritional value.  
D) Mice will learn to negotiate a maze in order to obtain a substance with nutritional value.
27. In operant conditioning (or instrumental conditioning), the procedure for extinction of a response is to
- A) present the conditioned stimulus without the unconditioned stimulus  
B) present the unconditioned stimulus without the conditioned stimulus  
C) withhold all reinforcements after responses  
D) provide a prolonged period of time without any exposure to the training stimuli
28. X studied all Tuesday morning for her geography test that evening. Tuesday afternoon she read a novel that took place in South America. When X sat down to take her test that evening, she complained that reading the novel made her forget most of the facts about geography she had studied in the morning. Which of the following accounts for her problem?
- A) Retroactive interference  
B) Proactive interference  
C) Small working memory  
D) Semantic priming
29. Beginning in the late 1950s and early 1960s, cognitive psychology became a powerful force within the field of psychology. Which of the following was a factor that helped in those years to spur this "Cognitive Revolution" forward?
- A) Development of brain imaging technologies such as MRI  
B) An emphasis on directly-observable, rather than inferred, mechanisms  
C) Meta-analysis of gender comparisons  
D) Development of digital computers
30. When he heard a child screaming, Phillip looked to see what other people were doing. Because they looked calm and unconcerned, Phillip decided that nothing needed to be done and did not go help the child. This is an example of
- A) the actor-observer effect  
B) the false-consensus effect  
C) pluralistic ignorance  
D) social loafing
31. Which of the following theorists proposes confrontation, avoidance, and seeking social support as the ways people cope with anxiety?
- A) Sigmund Freud  
B) Carl Jung  
C) Erich Fromm  
D) Karen Horney

32. Longitudinal and cross-sectional research designs can be used to study how behavior changes as a function of age. A disadvantage of cross-sectional studies is that the results can be influenced by
- A) random assignment  
B) participant attrition  
C) socioeconomic status  
D) cohort differences
33. The auditory and vestibular systems are alike in that both
- A) are vital to the sense of hearing  
B) respond slowly to the proximal stimulus  
C) provide us with information about the same aspects of the environment  
D) depend on hair cells to transduce the proximal stimulus into neural activity
34. Which of the following is the correct sequence of stages of test development?
- A) Test conceptualization, test construction, test tryout, item analysis, revision  
B) Test conceptualization, test construction, test tryout, revision, item analysis  
C) Test conceptualization, test tryout, construction, revision, item analysis  
D) Test construction, test conceptualization, test tryout, item analysis, revision
35. The argument that psychology should be an objective study of behavior wherein mind and consciousness serve no useful purpose was made most vigorously by
- A) Carl G. Jung  
B) John B. Watson  
C) Jean Piaget  
D) William James
36. Research has revealed that the trait most associated with heart attacks in Type A individuals is
- A) engaging in high-risk behavior  
B) lack of exercise  
C) lack of sleep  
D) hostility toward others
37. Phenylketonuria (PKU), cystic fibrosis, and Tay-Sachs all result from
- A) recessive genetic disorders  
B) dominant genetic disorders  
C) abnormalities in the number of chromosomes  
D) X-linked disorders
38. In Gordon Allport's taxonomy of traits, some individuals develop a trait that is experienced as a "ruling passion" and dominates most aspects of that individual's behavior. In Allport's taxonomy, such a trait is known as
- A) cardinal  
B) common  
C) constitutional  
D) secondary
39. Imagine the population a researcher is studying comprises of 53 percent ruralites and 47 percent urbanites. Which of the following methods is appropriate to select a sample which is also 53 percent ruralites and 47 percent urbanites.
- A) Survey Method  
B) Stratified Random Sampling  
C) Simple Random Sampling  
D) Multi-Stage Sampling
40. Which of the following survey designs is the most appropriate to collect opinion from samples showing diametrically opposite characteristics.
- A) Weighted Cross-Section Design  
B) Successive Interview Design  
C) Contrasting Sample  
D) Pre-Post Design.

41. In a study investigating effects of drugs on performance, the control group should be given
- A) Low dose of drugs  
 B) No drugs at all  
 C) Performance test before and after intake of drugs  
 D) High Dose of Drugs
42. A tentative solution to the research problem which remains tentative till it is upheld through testing is
- A) Theory  
 B) Law  
 C) Hypothesis  
 D) Experiment
43. Which of the following is considered as a major limitation of Naturalistic Observation
- A) It deals with behavior in real life situation  
 B) It cannot identify dynamics of observed behavior.  
 C) It provides redundant information.  
 D) Recording of Observed behavior is not possible
44. The statistical technique that pools results from a large number of earlier studies to draw inferences is called
- A) Hypothetical Analysis  
 B) Survey Design  
 C) Trend analysis  
 D) Meta-analysis
45. Which of the following correlation indicates strong relationship between two characteristics
- A) 0.82  
 B) +0.75  
 C) 0.00  
 D) +0.80
46. Which of the following best describes a double blind experimental procedure
- A) All subjects get experimental treatment  
 B) Half the subjects get experimental treatment and half get placebo known to the experimenter.  
 C) All the subjects are exposed to control procedures.  
 D) Half the subjects get the experimental treatment ; half the placebo; who gets what is not known to the experimenter.
47. The conditions that a researcher wishes to prevent from affecting the experiment are called
- A) Constants  
 B) Independent Variables  
 C) Extraneous Variables  
 D) Dependent Variables
48. One of the essential characteristics of a scientific method include
- A) Induction Reasoning  
 B) Deductive Reasoning  
 C) Controlled Observation  
 D) Analytical Reasoning
49. Which one of the following significance levels is most rigorous
- A) .05  
 B) .02  
 C) .01  
 D) .005
50. Which one of the following is the most rigorous type of validity
- A) Face  
 B) Split Half  
 C) Content  
 D) Predictive

Question Booklet Series : **A** Question Booklet Sr. No. **019016**

## Ph.D./M.Phil. Entrance Test – 2014

Subject : **Philosophy**  
**Paper-I**

**Important:** Please consult your Admit Card/Roll No. slip before filling your Roll Number on the Test Booklet and Answer Sheet.

Roll No. *In Figure* *In Words*

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O.M.R. Answer Sheet Serial No.

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Signature of the Candidate \_\_\_\_\_

**Time: 60 minutes**

**Number of Questions: 50**

**Maximum Marks : 50**

### **INSTRUCTIONS**

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## 1074

1. Rta denotes
 

A) Permanency of the world	B) The order of the world
C) eternity of the absolute	D) morality of living beings
2. The synonym of Brahma is
 

A) Rtasyaygopa	B) harivamsa
C) Hiranyagarbha	D) None of the above
3. Trivarga indicates
 

A) moksha dharma and artha	B) dharma kama and moksha
C) kamaartha and dharma	D) kamaartha and moksha
4. Neti-neti negates
 

A) All descriptions about Brahman	B) the Brahman
C) the reality of this world	D) the reality of atman
5. A substance according to Jaina is possessed of
 

A) Changing essential characters and unchanging modes	B) Unchanging essential characters and changing modes
C) Only unchanging essential characters	D) Only unchanging modes
6. According to Jaina the essential characteristic of soul is
 

A) consciousness	B) thinking
C) meditation	D) intuition
7. Anekantavada means
 

A) manyness of god	B) manyness of reality
C) manyness of individuality	D) manyness of thing
8. Gautama Buddha gave us a causal chain of suffering which is known as dvadasanidhana. Which among the following expresses the causation theory of Buddhism
 

A) Satkaryavada	B) asatkaryavada
C) vivartavada	D) Pratitsamutpadvada
9. Gandhi believes that ahimsa does not simply mean non-killing, it implies
 

A) Conquest of anger and pride	B) non-cooperation
C) absolute truthfulness	D) none of the above
10. The philosophy of \_\_\_\_\_ was a classical form of objective idealism.
 

A) Plato	B) Aristotle
C) Descartes	D) None of the above





31. The two attributes i.e. thought & extension correspond to two classes of
- |              |                  |
|--------------|------------------|
| A) Qualities | B) Substances    |
| C) Modes     | D) None of these |
32. The monads are ..... and everything is potential or implicit in it.
- |                |                  |
|----------------|------------------|
| A) Very strong | B) Active        |
| C) Windowless  | D) None of these |
33. Locke suggests that the understanding is like a piece of ..... on which perception inscribes its character.
- |                |                  |
|----------------|------------------|
| A) White paper | B) Stone         |
| C) Metal       | D) None of these |
34. Berkeley thinks the objective ideas are impressed upon finite spirits by the ..... from without.
- |                     |                      |
|---------------------|----------------------|
| A) Infinite spirit  | B) Mind              |
| C) Physical objects | D) None of the above |
35. Classical subjective idealism is represented by Berkeley, Hume &
- |           |              |
|-----------|--------------|
| A) Kant   | B) Spinoza   |
| C) Fichte | D) Augustine |
36. The sensation of one colour differs from another colour due to the ..... if it.
- |                     |                  |
|---------------------|------------------|
| A) Difference       | B) Opposition    |
| C) Objective nature | D) None of these |
37. Berkeley is .....
- |               |            |
|---------------|------------|
| A) Idealist   | B) Realist |
| C) Pragmatist | D) None    |
38. In the philosophy of nature ..... Prefers the teleological to the mechanical view.
- |            |             |
|------------|-------------|
| A) Locke   | B) Berkeley |
| C) Spinoza | D) Hume     |
39. Who among the following western philosophers attempted to refute "Matter"?
- |          |             |
|----------|-------------|
| A) Kant  | B) Berkeley |
| C) Locke | D) Hume     |
40. "Substance is a product of human imagination" is said by .....
- |              |            |
|--------------|------------|
| A) Descartes | B) Spinoza |
| C) Locke     | D) Hume    |



41. According to Kant, moral duty is
- A) the command of God  
B) given by one's intuition  
C) the imperative of pure reason.  
D) determined by majority.
42. Kant's rationalism is opposed to
- A) Empiricism.  
B) Hedonism  
C) Neo-Platonism  
D) None of the above
43. According to Kant, Knowledge begins with sense, proceeds thence to ..... and ends in .....
- A) Understanding, reason.  
B) Reason, understanding  
C) Noumena, phenomena  
D) None of the above.
44. The key notion of Hegel is
- A) The world  
B) Idea  
C) Geist  
D) None
45. Who among the following criticized Christianity as 'slaves' revolt' and as 'slave morality'?
- A) Sartre  
B) Russell  
C) Nietzsche  
D) Moore
46. Nietzsche, Spengler, Bergson are the exponents of
- A) Nominalism  
B) Pragmatism  
C) Realism  
D) None of these
47. Phenomenology is an investigation of phenomena and it deals with ..... only but not the .....
- A) Universals, Particulars  
B) Particulars, Universals  
C) Quality, Quantity  
D) Quantity, Quality
48. Which of the following theories works to make the foundations of the science to rid it of the pseudo concepts of metaphysics
- A) Pragmatism  
B) Idealism  
C) Logical positivism  
D) None of the above
49. By 'proposition' ..... Means any symbolic form - words, thoughts, symbols, or gestures which can express what may be said to be true or false.
- A) Carnap  
B) Frege  
C) Russell  
D) None of these
50. .... states "every proposition in which a description which describes nothing has a primary occurrence is false."
- A) Moore  
B) Russell  
C) Frege  
D) None of these

Question Booklet Series : **A** Question Booklet Sr. No. **020066**

## Ph.D./M.Phil. Entrance Test – 2014

**Subject : Public Administration**

**Paper-I**

**Important:** Please consult your Admit Card/Roll No. slip before filling your Roll Number on the Test Booklet and Answer Sheet.

Roll No. *In Figure* *In Words*

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O.M.R. Answer Sheet Serial No.

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Signature of the Candidate \_\_\_\_\_

**Time: 60 minutes**

**Number of Questions: 50**

**Maximum Marks : 50**

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1. Public Administration
  - A) is a cooperative group effort in a private setting.
  - B) covers all three branches of government.
  - C) is not part of political process.
  - D) is closely associated with groups providing community services.
2. Which of the following activities are not covered in 'POSDCORB'?
  - A) budgeting
  - B) personnel administration
  - C) Controlling
  - D) policy making
3. The publication of two books – "Toward a New Public Administration The Minnowbrook Perspective" by Frank Marini, and "Public Administration in a Time of Turbulence" by Dwight Waldo led to a new trend in public administration called"
  - A) Development Administration
  - B) New Public Administration
  - C) Theory Building
  - D) Managerial Revolution
4. Which of the following is a true statement about staff agencies?
  - A) they stand outside the main line of administrative heirarchy
  - B) they are an expansion of the personality of the chief executive
  - C) they are a help or reinforcement
  - D) all the three above
5. Which of the following can create barriers in communication?
  - A) mechanical problems
  - B) organizational problems
  - C) personal problems
  - D) all the three above
6. According to Gulick the bases of departmentalization are:
  1. Function
  2. Office
  3. Place
  4. Purpose
  - A) 1, 2, 3 are correct
  - B) 2, 3 4 are correct
  - C) 1, 3 and 4 are correct
  - D) 1 and 2 are correct
7. "Coordination is the first principle of organization," said:
  - A) Mooney
  - B) Simon
  - C) Newman
  - D) M.P. Follet
8. The concept of the zone of indifference is associated with:
  - A) Decision-making
  - B) Leadership
  - C) Authority
  - D) Motivation
9. Who has analysed leadership in terms of circular response?
  - A) C.I. Barnard
  - B) Mooney
  - C) M.P. Follett
  - D) Millet
10. Simon proposed a new concept of administration based on the methodology of:
  - A) Decision-making
  - B) Bounded rationality
  - C) Logical positivism
  - D) Satisficing

11. An informal organization:
1. Maintains cohesiveness in a formal organization.
  2. Dilute the formal communication system.
  3. Dehumanizes the formal organization.
  4. Enforces formal authority.
- A) 1, 2 are correct                      B) 3, 4 are correct  
C) 1, 4 are correct                      D) 2, 3 are correct
12. According to Human Relations School:
1. Specialization leads to efficient output.
  2. Satisfaction of social needs in work context is a motivating factor.
  3. Informal leaders are influential in setting group norms.
  4. Work group has no role in shaping individual employee behaviour.
- A) 1 and 2 are correct                      B) 3 and 4 are correct  
C) 2 and 3 are correct                      D) 1, 2, 4 are correct
13. Which of the following are the tenets of 'reinventing government' (Osborne and Gaebler):
1. Government should serve rather than empower.
  2. Government should be rule driven rather than mission driven.
  3. Government should be decentralized.
  4. Government should be market oriented.
- A) 1, 2 are correct                      B) 3, 4 are correct  
C) 1, 3 are correct                      D) All are correct
14. A minister is accountable to parliament:
1. for his own actions.
  2. for lack of action.
  3. for his civil servants actions.
  4. for his party's policies.
- A) 1, 2 are correct                      B) 3, 4 are correct  
C) 1, 2, 3 are correct                      D) All are correct
15. In India the courts do not interfere with purely administrative action:
1. unless it is *ultravires* in regard to its scope or form.
  2. unless the administrative action fails to follow the prescribed procedure.
  3. unless it violates fundamental rights.
  4. unless it violates directive principles.
- A) 1, 2, 3 are correct                      B) 3, 4 are correct  
C) 1, 3, 4 are correct                      D) All are correct
16. Which of the following factors must be considered while making decisions?
1. Legal limitations
  2. Future as anticipated
  3. Nature of programme
  4. Staff
- A) 1, 2, 3 are correct                      B) 2, 3, 4 are correct  
C) 1, 3, 4 are correct                      D) All are correct

17. Consider the following statements:  
In 1991 British Prime Minister John Major launched the Citizen's Charter whose main themes were:
1. Official secrecy    2. Choice    3. Non-discrimination    4. Accessibility
- A) 1, 2, 3 are correct    B) 2, 3, 4 are correct  
C) Only 1 is correct    D) Only 3 is correct
18. As in USA and UK the Indian civil servants are prohibited:
1. From becoming a member of a political party.  
2. From acting as an election agent.  
3. From casting vote in bye-elections.  
4. From forming or joining associations.
- A) 1, 2 are correct    B) 3, 4 are correct  
C) 1, 2, 3 are correct    D) All are correct
19. Civil Servants
1. perform quasi-judicial functions.  
2. perform quasi-legislative functions.  
3. advise the political executive on policy matters.  
4. are accountable to political executive.
- A) 1, 2, 3 are correct    B) 1, 2, 4 are correct  
C) 2, 3, 4 are correct    D) All are correct
20. Direct recruitment of personnel
1. is democratic    2. is equitable    3. is just    4. is discriminatory
- A) 1, 2, 3 are correct    B) 1, 2, 4 are correct  
C) 2, 3, 4 are correct    D) All are correct
21. What are the objectives of training the civil servants?
1. To prepare the civil servants for future tasks.  
2. To provide a narrow view of administration.  
3. To prepare them for higher responsibilities.  
4. To prepare them to relate to political executive.
- A) 1, 2, 4 are correct    B) 1, 2, 3, 4 are correct  
C) 1, 3 are correct    D) 2, 4 are correct
22. "Promotion":
1. is appointment from a higher position to a given position.  
2. involves change of duties to a more difficult type of work.  
3. involves a decrease in responsibility.  
4. is accompanied by change in title.
- A) 1, 2 are correct    B) 2, 3 are correct  
C) 1, 4 are correct    D) 2, 4 are correct
23. Universally recognized unethical activities are:
1. bribery    2. graft    3. patronage    4. Influence peddling
- A) 1, 2, 3 are correct    B) All are correct  
C) 2, 3, 4 are correct    D) 1, 2 are correct

24. Consider the following statements on Public Accounts Committee:
1. It consists of members from both houses of parliament.
  2. It is an annually elected body.
  3. It is elected on the basis of single transferable vote system.
  4. It is headed by an elected chairman.
- A) 1, 2, 3 are correct                      B) 2, 3, 4 are correct  
C) 1, 3 are correct                         D) 2, 3 are correct
25. Consider the following statements:  
Budget
1. is a tool of accountability
  2. is a tool of management
  3. is an instrument of economic policy
  4. is a political exercise
- A) 1, 2, 4 are correct                      B) 1, 3, 4 are correct  
C) 1, 2, 3 are correct                      D) All are correct
26. If a vacancy occurs in the office of The President, the new president must be elected within
- A) 60 days                                      B) 90 days  
C) six months                                 D) no time limit
27. Which of the following is a correct statement regarding the Prime Minister?
- A) he chooses the ministers, allocates portfolios to them and can ask them to resign if they disagree with him.  
B) he is a link between the President and the Cabinet  
C) he is the leader of Parliament and represents the government in it  
D) all the three above
28. Which of the following is the oldest text on public administration?
- A) Arthashastra                                B) The Prince  
C) The Politics                                 D) Mahabharata
29. The formal channel of official communication between a Secretary to the Government and the state administration is:
- A) Secretary to the Chief-Minister        B) Governor of the State  
C) Chief Secretary                            D) Secretary to the department concerned
30. Who handles the work relating to the drafting of the rules of business of the Government?
- A) office of the Speaker of the Lok Sabha    B) Cabinet Secretariat  
C) Prime Minister's office                    D) Ministry of Parliamentary Affairs
31. The Rajya Sabha in India consists of
- A) 238 members                                B) 250 members  
C) 254 members                                D) 256 members
32. If the office of the Governor falls vacant suddenly who succeeds him?
- A) Chief Justice of the High Court of that State  
B) No one  
C) Chief Minister  
D) Speaker of the State Assembly



45. All expenditure, out of the consolidated fund is provided in:
- |                  |                         |
|------------------|-------------------------|
| A) adhoc funds   | B) demand for grants    |
| C) excess grants | D) supplementary grants |
46. The C&AG of India is appointed by the President by warrant under his hand and :  
Article ..... of the Indian Constitution.
- |        |        |
|--------|--------|
| A) 148 | B) 149 |
| C) 150 | D) 151 |
47. Money can be advanced out of the contingency fund of India to meet unforeseen exp  
by the:
- |                     |                   |
|---------------------|-------------------|
| A) Parliament       | B) President      |
| C) Finance Minister | D) Prime Minister |
48. In the context of the budget, the term 'Guillotine' is used with reference to:
- |                       |                      |
|-----------------------|----------------------|
| A) appropriation bill | B) consolidated fund |
| C) voting of demands  | D) finance bill      |
49. The railway budget was separated from the central budget in the year:
- |         |         |
|---------|---------|
| A) 1920 | B) 1921 |
| C) 1922 | D) 1923 |
50. When the advance grant is made by Parliament pending the regular passage of the bud  
called:
- |                    |                        |
|--------------------|------------------------|
| A) vote on credit  | B) token grant         |
| C) vote on account | D) supplementary grant |













કેન્દ્ર દ્વારા આયોજિત થયેલા કોઈ એક દિવસીય કાર્યક્રમનું નામ શું છે ?

- (A) ડી-બી ડેમ (B) ડેટાફોર
- (C) ડેવલપમેન્ટ ડેમ (D) ડેવલપમેન્ટ ડેમ

કેન્દ્ર દ્વારા પ્રથમ વાર કોઈ એક ની નામ પ્રકાશિત કરવામાં આવ્યું છે ?

- (A) કોઈ એક ની નામ (B) કોઈ એક ની નામ
- (C) કોઈ એક ની નામ (D) પ્રથમ વાર

કેન્દ્ર દ્વારા પ્રથમ વાર કોઈ એક ની નામ પ્રકાશિત કરવામાં આવ્યું છે ?

- (A) મુજબ 226 (B) મુજબ 112
- (C) મુજબ 265 (D) કોઈ એક ની નામ

કેન્દ્ર દ્વારા પ્રથમ વાર કોઈ એક ની નામ પ્રકાશિત કરવામાં આવ્યું છે ?

- (A) 1 સપ્ટેમ્બર (B) 1 ડેસેમ્બર
- (C) 1 જુલાઈ (D) 1 માર્ચ

કેન્દ્ર દ્વારા પ્રથમ વાર કોઈ એક ની નામ પ્રકાશિત કરવામાં આવ્યું છે ?

- (A) 1 સપ્ટેમ્બર (B) મુજબ કોઈ એક ની નામ
- (C) 1 જુલાઈ (D) મુજબ મુજબ

કેન્દ્ર દ્વારા પ્રથમ વાર કોઈ એક ની નામ પ્રકાશિત કરવામાં આવ્યું છે ?

- (A) 145 (B) 149 (C) 150 (D) 151

કેન્દ્ર દ્વારા પ્રથમ વાર કોઈ એક ની નામ પ્રકાશિત કરવામાં આવ્યું છે ?

- (A) કોઈ એક ની નામ (B) કોઈ એક ની નામ
- (C) કોઈ એક ની નામ (D) કોઈ એક ની નામ

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- (A) 1920 (B) 1921 (C) 1922 (D) 1923

કેન્દ્ર દ્વારા પ્રથમ વાર કોઈ એક ની નામ પ્રકાશિત કરવામાં આવ્યું છે ?

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Question Booklet Series : **A** Question Booklet Sr. No. **022021**

## **Ph.D./M.Phil. Entrance Test - 2014**

**Subject : Centre For Defence & National Security Studies**  
**Paper-I**

**Important:** Please consult your Admit Card/Roll No. slip before filling your Roll Number on the Test Booklet and Answer Sheet.

Roll No. *In Figure* *In Words*

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O.M.R. Answer Sheet Serial No.

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Signature of the Candidate \_\_\_\_\_

**Time: 60 minutes**

**Number of Questions: 50**

**Maximum Marks : 50**

### **INSTRUCTIONS**

1. Write your roll No. on the Question Booklet and also on the OMR Answer Sheet in the space provided and nowhere else.
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14. **Telecommunication equipment such as pager, cellular phone, wireless, scanner, etc., is not permitted inside the examination hall. Use of calculators is not allowed.**

- Defence Policy of a country aims at
  - Maintaining international peace
  - Safeguarding territorial integrity
  - Preserving sovereignty
  - Projecting National Image
- Identify the chemical and biological weapons treaties in descending chronological order.
  - Chemical weapons convention, US-Soviet chemical weapons agreements, Biological weapons convention, Geneva Protocol.
  - US-Soviet chemical weapons agreements, Chemical weapons convention, Geneva Protocol, Biological weapons convention.
  - Biological weapons convention, Geneva Protocol, Chemical weapons Convention, US-Soviet chemical weapons agreements
  - Geneva Protocol, Biological weapons convention, Chemical weapons Convention, US-Soviet chemical weapons agreements
- Which one of the following is not part of the Human Security discourse?
  - Freedom from Fear
  - Freedom from Want
  - Resource Scarcity
  - Defence Expenditure
- The Sinatra doctrine:
  - Was a catchphrase for foreign policy under Gorbachev.
  - Replaced the Khrushchev doctrine.
  - Followed *glasnost* and *perestroika*.
  - Was a catchphrase for foreign policy under Gorbachev and followed *glasnost* and *perestroika*?
- Strategic Studies is related with the study of
  - the evolution of warfare
  - the use of military power for political objectives
  - the use of military power for military objectives
  - the military policies in the nuclear age
- Which one of the following countries did not contribute to the development of the NAM
  - Egypt
  - Yugoslavia
  - China
  - India
- Who among the following propounded the concept of "push to utmost"?
  - Jomini
  - Clausewitz
  - Alfred.T.Mahan
  - Douhet
- A theory based on principle of rational decision to prevent total destruction and also providing alternative to war is known as
  - Dependency theory
  - Theory of Security Dilemma
  - Deterrence Theory
  - Balance of power Theory



9. What can be said about the New Haven School?
- A) The school where the realist approach to international law was conformed.
  - B) It is also known as the policy approach.
  - C) It is also known as the legal internationalism approach.
  - D) It borrows from positivism and naturalism.
10. The UN world conference on Human Rights in June 1993 was held in:
- A) Geneva
  - B) Vienna
  - C) London
  - D) Paris
11. India and France signed strategic partnership in which Year
- A) 1998
  - B) 2000
  - C) 2011
  - D) 2013
12. Which one of the following is the country of origin of "Phalcon Radar"?
- A) Israel
  - B) Germany
  - C) USA
  - D) India
13. Who said, "Victorious warriors win first and then go to war, while defeated warriors go to war first and then seek to win."?
- A) Liddle Hart
  - B) Mao Tse Tung
  - C) Kautilya
  - D) Sun Tzu
14. Who among the following thinkers compared the internal threat as a "lurking hood of a snake"?
- A) Kautilya
  - B) G. Douhet
  - C) Carl Von Clausewitz
  - D) H. Mackinder
15. Match the Defence public Sector undertaking -DPSU's (LIST -1) with their locations (List -2) and choose the appropriate code:
- | List -1 (DPSU's) |                               | List-2(Locations) |           |
|------------------|-------------------------------|-------------------|-----------|
| A)               | Bharat Dynamics Limited       | i.                | Hyderabad |
| B)               | Hindustan Aeronautics Ltd     | ii.               | Banglore  |
| C)               | Garden Research Ship Builders | iii.              | Goa       |
| D)               | Bharat Electronics Ltd.       | iv.               | Banglore  |
- Codes:
- |    | a   | b   | c   | d  |
|----|-----|-----|-----|----|
| A) | i   | ii  | iii | iv |
| B) | ii  | iii | i   | iv |
| C) | iii | ii  | iv  | i  |
| D) | iv  | iii | ii  | i  |
16. Which of the following was an important figure in the development of liberal perspectives on international politics?
- A) Hugo Grotius.
  - B) Niccolo Machiavelli
  - C) Thomas Hobbes.
  - D) All of the above.

17. Which of the following events contributed to the emergence of international society?
- A) The Crusades.
  - B) Exploration and colonization of the New World
  - C) The Protestant Reformation
  - D) Both exploration and colonization of the New World and The Protestant Reformation.
18. The discipline of defence economics mostly concentrates on:
- A) Pre-war economy
  - B) Mobilization of military resources
  - C) Planning programming and budgeting of resources for defence requirements.
  - D) Allocation of natural resources
19. It is most accurate to describe realist theory as...
- A) Immoral, in that it encourages the breach of important ethical rules.
  - B) Irrational, in that it denies that human beings are capable of rational thought.
  - C) Amoral, in that it refuses to condemn every action that breaches moral rules.
  - D) Ambiguous, in that realist theorists are very reluctant to voice an opinion about the state of the world.
20. Which one of the following completes the research process
- A) Research note
  - B) Report Writing
  - C) Summary Writing
  - D) Preface Writing
21. The Monroe Doctrine stated that...
- A) US Presidents should avoid romantic entanglements with blonde actresses.
  - B) America reserved the right to intervene in armed disputes across the globe.
  - C) America would pursue its interests within its sphere of influence without reference to European powers.
  - D) America would support any anti-Communist state.
22. Which of the following is a way of doing social science research
- A) Case study
  - B) Game Study
  - C) Plan Study
  - D) Process Study
23. Hypothesis relate generally of specifically
- A) Variables to Variables
  - B) Constant to Variables
  - C) Variables to Constant
  - D) Constant to Constant
24. Who put forward the statement, "Research is an honest effort carried out through insight".
- A) Watson
  - B) Best
  - C) Binet
  - D) Cook
25. France withdrew from Indochina after a military defeat at
- A) Dien Bien Phu
  - B) Ho Chi Minh
  - C) Bao Dai
  - D) Pusan

26. Which of the following is not true about Memorandum 68 of the National Security Council (NSC-68)?
- A) It described the Soviet Union as an uncontrollably aggressive empire bent on world domination.
  - B) None of these choices
  - C) It recommended massive military buildup and the development of the hydrogen bomb.
  - D) It urged diplomatic ties with nations of the Warsaw Pact to break up the Eastern Communist bloc.
27. Which one of the following Arab-Israel Conflicts was seen as responsible for the defensive build up of the Barlev line:
- A) Suez Conflict of 1956
  - B) Arab Israel Conflict of 1967
  - C) Arab-Israeli Conflict of 1973
  - D) PLO-Israel Conflict
28. The person, for whom the term "one man boundary force" has been used
- A) Mahatama Gandhi
  - B) Gen. Erwin Rommel
  - C) Gen. K Sunderji
  - D) Nelson Mandela.
29. The Korean War's "privileged sanctuaries" were located in....??
- A) North Vietnam
  - B) Taiwan
  - C) South Korea
  - D) Communist China
30. Which of the following is not the fundamental objective of CBM's and propounded by Helsinki Final Act of 1975.
- A) to eliminate the cause of tension
  - B) to promote confidence between parties to contribute to stability
  - C) to reduce the danger of conflict
  - D) to encourage building of military alliances
31. Who wrote the book "Necessity of choice"?
- A) K. Subrahmanayam
  - B) Carl Von Clausewitz
  - C) Dr. Henry Kissinger
  - D) D.K Pandit.
32. Match the following events with their respective core objectives and choose the correct code:

Table I

- A) Helsinki process
- B) Stockholm Conference
- C) START-I
- D) INF treaty

Table II

- (i) Confidence Building Measures
- (ii) Confidence and Security building measures
- (iii) Strategic Arms Limitation
- (iv) Reduction of Nuclear Forces

Codes:

- |    | a)  | b)  | c)  | d)  |
|----|-----|-----|-----|-----|
| A) | i   | ii  | iii | iv  |
| B) | ii  | i   | iv  | iii |
| C) | iii | ii  | i   | iv  |
| D) | iv  | iii | i   | ii  |

33. National Institute of Oceanography is located at:  
A) Mumbai B) Panaji  
C) Chennai D) Lucknow
34. Who wrote the book "Absolute Weapons: Atomic Power and World Order"  
A) Harman Kahan B) Montgomery  
C) Bernard Brodie D) Carl Sagan
35. A national level environmental research institute at Nagpur is  
A) NEERI B) CIPHER  
C) ICAR D) CSIR
36. A spider climbs 10 meters of a pole in 20 minutes and slips down 2 meters at the very moment. If it takes 3 hours to climb on its top find the length of the pole?  
A) 74 meters B) 72 meters  
C) 80 meters D) 90 meters
37. A number is as much greater than 17 as it is less than 57. Find the number  
A) 36 B) 37  
C) 40 D) 44
38. If the following series of numbers is written in the reverse order which number will be the seventh to the right of the fourth number from the left.  
1,8,3,9,7,4,10,6,2,11,13,5,14,16  
A) 3 B) 9  
C) 13 D) 2
39. "Steam Roller Tactics" was the core of Israeli offensives in one of the following:  
A) Military operations in the Sinai region.  
B) Military operations on Golan Heights.  
C) Military Operations in the West Bank.  
D) Naval operations in Mediterranean & Red Seas
40. 'Southeast Asia: Crosswords of the World' a book authored by  
A) John F. Cady B) Clark Neher  
C) Milton Osborn D) Carlyle A. Thayer
41. The SAFTA Agreement was signed on 6 January 2004 during Twelfth SAARC Summit held in  
A) Colombo B) Kathmandu  
C) New Delhi D) Islamabad
42. The Treaty of Guadalupe Hidalgo established the border between the following countries:  
A) Mexico and US B) US and Canada  
C) US and UK D) Canada and Mexico

43. Which one of the following treaties belongs to the Nuclear Weapons Free Zone in Latin America?
- A) Treaty of Tlatelolco  
B) Open Skies Treaty  
C) Antarctic Treaty  
D) Treaty of Terotonga
44. Who among the following asserted that "climate change is a bigger threat than terrorism"?
- A) David King  
B) R.K. Pachauri  
C) Hannes Alfoven  
D) Tony Blair
45. The BTC energy pipeline originates from which country?
- A) Armenia  
B) Georgia  
C) Azerbaijan  
D) Kazakhstan
46. Which one of the following countries is not a member of NATO?
- A) Hungary  
B) Belarussia  
C) Czech Republic  
D) Poland
47. Who among the following US scholars published his article in Foreign Affairs journal named as "X"?
- A) Henry Kissinger  
B) George F. Kennan  
C) Bernard Broodie  
D) Richard Haas
48. Mahakali Treaty between India and Nepal was signed in the year.
- A) 1996  
B) 1952  
C) 1998  
D) 1950
49. Who said the term 'Cyber Space'?
- A) Linda Billgates  
B) William Gibson  
C) E.D Swintos  
D) Sam Pitroda
50. Kautilya advocated six categories of troops, which of the following categories of troops constituted the standing army?
- A) Maula Troops  
B) Bhrita troops  
C) Sreni Bal  
D) Atavika Bal

## Ph.D. Entrance Test – 2014

### Subject : Social Work

#### Paper-I

**Important:** Please consult your Admit Card/Roll No. slip before filling your Roll Number on the Test Booklet and Answer Sheet.

Roll No. *In Figure* *In Words*

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O.M.R. Answer Sheet Serial No.

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Signature of the Candidate \_\_\_\_\_

**Time: 60 minutes**

**Number of Questions: 50**

**Maximum Marks : 50**

#### **INSTRUCTIONS**

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1. Global Human development index reports are brought out by
  - A) UNICEF
  - B) UNESCO
  - C) UNDP
  - D) UNHCR
2. Who among the following is associated with the Verstehen approach which means understanding?
  - A) Karl Marx
  - B) Max Weber
  - C) R K Merton
  - D) R M Maciver
3. The book "Community Welfare Organisation Principles and Practice" has been written by
  - A) K D Gangrade
  - B) Murray G Ross
  - C) M S Gore
  - D) Arthur Dunham
4. Advocates of the structural approach to social work generally view social welfare as
  - A) One of the contradictions of capitalism
  - B) A necessary public response of help people attain a reasonable standard of life and health
  - C) A limited, temporary response to human need
  - D) None of the above
5. Welfare activities in Rural areas are not hampered by:
  - A) Lack of finance
  - B) Lack of data on population needs
  - C) Absence of leadership
  - D) Poverty
6. The functional theory approach to practice emerged during which time period ?
  - A) Early 1900s
  - B) 1920s
  - C) 1930 to mid 1940s
  - D) Mid 1940s to 1960
7. Whose definition of social casework has indicated the four essential components : person, problem, place and process in it ?
  - A) Perlman
  - B) Hamilton
  - C) Taylor
  - D) Richmond
8. Oral communication formats in clinical social work practice consist of
  - A) An agency's operational manual
  - B) An agency's organisational structure
  - C) An agency's mission statement
  - D) An agency's catchment area

9. Which of the correct chronological sequence of Acts ?
- A) Hindu Adoption and Maintenance Act, Mumbai Children's Act, Juvenile Justice Act
  - B) Mumbai Children's Act, Hindu Adoption and Maintenance Act, Juvenile Justice Act
  - C) Either 'a' or 'b'
  - D) None of the above
10. The Ninth Five Year plan envisages
- A) Poverty eradication
  - B) Growth with social justice
  - C) Industrial Growth
  - D) Agricultural growth with rural development
11. One of the following theories is known as growth oriented theory:
- A) Psycho analytic theory
  - B) Client centred theory
  - C) Existential theory
  - D) Cognitive learning theory
12. Which among the following is not the purpose of Human Resource Planning ?
- A) Configuring fixed skill set- up for the departments in a same manner
  - B) Analyse people market environment
  - C) Forecasting future skill requirement
  - D) Optimum use of currently employed human resources
13. Conscientisation model is associated with
- A) Mary Richmond
  - B) Paul Chowdhary
  - C) Paul Friere
  - D) Perlman
14. NICP means
- A) National Initiative for Child Protection
  - B) National Integrative for Child Programme
  - C) National Integrative for Child Policy
  - D) National Initiative for Child Planning
15. Probation of offenders came into being in the year
- A) 1948
  - B) 1952
  - C) 1958
  - D) 1962
16. Murry G Ross suggested 3 approaches for Community organisation i.e. specific content approach and generic content approach. The third approach is
- A) Problem approach
  - B) Process approach
  - C) Propaganda approach
  - D) Planning approach



17. Old Age Survivors, Disability and Health Insurance (OASDHI) a Social insurance programme was created by
- A) The Social Security Act, 1935      B) The Poor law of 1601  
C) The Statute of 1572                  D) The Laws of Settlement 1662
18. Institutional redistributive model is linked with
- A) Totalitarian State                      B) Welfare State  
C) Capitalist State                         D) Communist State
19. Who has advanced the 'soft' and 'hard' approach of HRM ?
- A) Benjamin Schneider                  B) James Niniger  
C) John Storey                              D) Lloyd Baint
20. Arrange the following types of data in order of their complexity
- A) Interval                                  B) Ratio  
C) Ordinal                                   D) Nominal
- Codes a) 2,1,3,4    b) 1,2,3,4    c) 4, 3, 1, 2    d) 4, 3, 2, 1
21. The concept of management by objectives was introduced by
- A) Mary Parket Foilet                      B) Keith Davis  
C) Peter Drucker                             D) F W Taylor
22. Diagnostic School of Social Case Work was developed by
- A) Ross                                        B) Jung  
C) Rank                                         D) Mead
23. The First Women's University was set up in
- A) Delhi                                         B) Calcutta  
C) Bombay                                     D) Madras
24. Most of the Indians are
- A) Negrito                                      B) Nordic  
C) Mediterranean                            D) Proto-Australoid
25. Pareto termed the rational 'Apartheid' refers to
- A) Social discrimination                  B) Political discrimination  
C) Racial discrimination                  D) Spatial discrimination
26. The chief advocate of Inverse Deductive Method is
- A) J S Mill                                      B) M Weber  
C) G Simmel                                  D) G L Movenno

27. The Quality of questions in a test is assessed by using the method of
- A) Item analysis                      B) Task analysis  
C) Content analysis                  D) Trend analysis
28. Inductive statistics refers to
- A) summarising of information  
B) application of research methods  
C) application of  $\chi^2$  test  
D) making generalisation about some population on the basis of sample
29. "The Community is the smallest territorial group that can embrace all aspects of Social life" According to
- A) C H Cooley                          B) Kingsley Davis  
C) R M Maciver                        D) Harry H Johnson
30. Which of the following can impose reasonable restrictions on the Fundamental Rights of the Indian Citizens ?
- A) Supreme Court  
B) Parliament  
C) President on the advice of the Council of Ministers  
D) None of the above
31. Under Article 368, Parliament has no power to repeal Fundamental Rights because they are
- A) Enshrined in part III of the Constitution  
B) Human Rights  
C) Transcendental rights  
D) Part of basic structure of essential framework of the Constitution
32. The Government Bill means a bill introduced by a
- A) Member of the treasury bench in the Lok Sabha  
B) Member of the Parliament who is not a Minister  
C) Minister in the Lok Sabha  
D) Minister in any house of the Parliament
33. The Supreme Court was set up under
- A) Pitt's India Act                      B) Regulating Act  
C) Indian Council's Act, 1861        D) Indian Council's Act, 1892
34. Which one of the following Articles of the Constitution of India makes a specific mention of Village Panchayats
- A) Article 19                              B) Article 21  
C) Article 40                              D) Article 246



45. As per UNO's declaration, the year 2011 is being celebrated as International year of
- A) Youth  
B) Women Empowerment  
C) Forests  
D) Global Economic Cooperation
46. Particularistic achievement pattern is characterised by \_\_\_\_\_
- A) Modern values  
B) Traditional values  
C) Universal values  
D) Ascribed values
47. What is the prime reason of Social Change according to the conflict theorists ?
- A) Social problems  
B) Social conflicts  
C) Social tensions  
D) All of these
48. Which Schedule of the Indian Constitution is enacted to protect tribal interests?
- A) 5<sup>th</sup> and 6<sup>th</sup>  
B) Only 5<sup>th</sup>  
C) Only 6<sup>th</sup>  
D) None of these
49. According to UNDP what is the current population of the world?
- A) 6 billion  
B) 6.5 billion  
C) 8 billion  
D) 7.2 billion
50. According to NCEUS in 2005 report, percentage of unorganised workforce is
- A) 85 %  
B) 86 %  
C) 87 %  
D) 88 %

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- 26. प्रविष्टीय विमर्श अवली का मुख्य लक्ष्य है :  
 (A) जे. एच. मिल (B) एन. रॉय  
 (C) जी. सिन्हा (D) जी. एन. मोदी
- 27. परीक्षा में उत्तम की गुणवत्ता को सुदृढीकरण किस विधि के प्रयोग से किया जाता है :  
 (A) दम विच्छेदन (B) मास विच्छेदन  
 (C) विलयन विच्छेदन (D) प्रवृत्ति विच्छेदन
- 28. भाषाशास्त्रिक भांसडे किस सी अर्थ समेत करते हैं :  
 (A) हजम का संशोधन  
 (B) शोध विधियों का उपयोग  
 (C) ही परीक्षा का उपयोग  
 (D) नए के आधार पर कुछ भाषाओं के बारे में सामान्यीकरण करना
- 29. " हजम का एक ही छोटा क्षेत्रीय समूह है जिसमें सामाजिक जीवन के सभी पहलू सम्मिलित हो सकते हैं " यह कथन किस का है :  
 (A) ए. ए. सूनी (B) किंगडोले डेविड  
 (C) अर. एन. मैकडवेल (D) हेरि डब. जॉन्सन
- 30. भारतीय नागरिकों के घल अधिकारों पर उचित रोके सैन-हा बना सकता है :  
 (A) सर्वोच्च न्यायालय (B) संसद  
 (C) मंत्री-परिषद की सलाह से राष्ट्रपति  
 (D) उपर्युक्त में से कोई भी नहीं है
- 31. अनुच्छेद 368 के अंतर्गत, संसद को घल अधिकारों की निश्चित करने का कोई अधिकार नहीं है क्योंकि ये है :  
 (A) संविधान के भाग 3 में सुरक्षित  
 (B) राज्य अधिकार (C) मधुर अधिकार  
 (D) संविधान के भाग 3 में भी सुरक्षित संसद का भाग
- 32. सरकारी विधेयक का मतलब है किहू द्वारा प्रस्तुत विधेयक :  
 (A) लोक सभा में मंत्री-मंच का सदस्य  
 (B) संसद का सदस्य जो मंत्री नहीं है  
 (C) लोक सभा में मंत्री  
 (D) संसद के किसी भी स्थल में मंत्री
- 33. सर्वोच्च न्यायालय को किस के अंतर्गत स्थापित किया गया था :  
 (A) विरम इन्डिया एक्ट  
 (B) वेगमुनेटिंग एक्ट  
 (C) भारतीय परिषद अधिनियम, 1861  
 (D) भारतीय परिषद अधिनियम, 1892
- 34. भारत के संविधान का मौन-हा अनुच्छेद प्राप्त संसदों का विशेष वर्ण करता है :  
 (A) अनुच्छेद 19 (B) अनुच्छेद 21  
 (C) अनुच्छेद 40 (D) अनुच्छेद 246
- 35. राष्ट्रीय विकास परिषद को कब स्थापित किया गया था :  
 (A) 1948 (B) 1950 (C) 1951 (D) 1952
- 36. स्वर्ण जमन्ती ग्राम स्वरोजगार योजना का आरंभ की गई थी :  
 (A) अप्रैल 1985 (B) अप्रैल 1997  
 (C) अप्रैल 1999 (D) जुलाई 2001
- 37. उच्च स्तरीय का नया नाम है जो महिलाओं को परंपरागत और गैर-परंपरागत - कार्यों में प्रशिक्षण और सुखलाएँ प्रदान करती है :  
 (A) विश्वी इक्ति योजना (B) राष्ट्रीय महिला सौध  
 (C) स्वयंसेवक (D) स्वयंसेवक
- 38. एशिया और प्रशांत महासागर के लिए अर्थिक और सामाजिक भाषा (ESCAP) का पहला परिषद है :  
 (A) स्वयंसेवक (B) वैश्विक  
 (C) स्वयंसेवक (D) वैश्विक

- 39. संसद सबू औद्योगिक विकास हांगका का मुख्य है :  
 (A) कश्मिगत 31 ही (B) वीथान  
 (C) रोम (D) मैनेज
- 40. विश्व बैंक का प्रयोजन है :  
 (A) गुणवत्ता-रोम की विधि का लागत करना  
 (B) व्यापार अंतरालों को कम करना  
 (C) विकास के प्रयोजनों के लिए अंतरराष्ट्रीय (D) विकासशील देशों के प्रोजेक्टों की लागत को
- 41. भारतीय विकास (RBI) पर विश्व सम्मेलन में हुए :  
 (A) डेवेल (B) इच्छाई  
 (C) जॉन्सन (D) नोक सम्मेलन
- 42. UNO का 193-का सदस्य है :  
 (A) सॉन्डोरो (B) ईस्ट टाइम  
 (C) इन्डोनेशिया (D) ताइवान
- 43. UNO से सैन-हा संबंधित नहीं है :  
 (A) ILO (B) WHO  
 (C) विश्व परिषद (D) ASEAN
- 44. भारत में 2011 की जनगणना के अनुसार, नए अनुपात 927 (2011 - ) से कम हुआ है :  
 (A) 915 (2011) (B) 916 (2011)  
 (C) 914 (2011) (D) 917 (2011)
- 45. ए. एन. मो. की संवधान के अनुसार, संसद के अंतरराष्ट्रीय वर्ष के तौर पर बनाया जा सकता है :  
 (A) गुणवत्ता (B) नयी सम्मेलन  
 (C) वन (D) विश्व अर्थिक सम्मेलन
- 46. विधेयक-परम उपलब्ध वर्णों की विशेषता है :  
 (A) आधुनिक शून्य (B) परंपरागत शून्य  
 (C) व्यापक शून्य (D) आदीपित शून्य
- 47. सर्वोच्च न्यायालयों के अनुसार, सामाजिक जीवन सुदृढीकरण का है :  
 (A) सामाजिक समस्यार्थ (B) सामाजिक संघर्ष  
 (C) सामाजिक तनाव (D) वे सभी
- 48. भारतीय संविधान की किस अनुच्छेदों को जनसंख्या की सुरक्षा के लिए कानून बनाया गया है :  
 (A) 5-वीं और 6-वीं (B) केवल 5-वीं  
 (C) केवल 6-वीं (D) इन में से कोई भी नहीं है
- 49. UNDP के अनुसार, विश्व की जनसंख्या वृद्धि है :  
 (A) 6 मिलियन (B) 6.5 मिलियन  
 (C) 8 मिलियन (D) 7.2 मिलियन
- 50. 2005 की रिपोर्ट के NCRUS के अनुसार, नए अम-वत की प्रतिशतता है :  
 (A) 85% (B) 86%  
 (C) 87% (D) 88.1%



- 26. ਉਹਦੀ ਸਿਖਲਾਈ ਖਾਣੀ ਦੇ ਚੰਗੇ ਸੰਸਕਾਰ ਤੇ :
  - (A) ਡੀ. ਐੱਸ. ਲਿਓ (B) ਐੱਸ. ਐੱਸ.
  - (C) ਡੀ. ਡਿਓ (D) ਡੀ. ਐੱਸ. ਡੇਵੀ
- 27. ਪਹਿਲਾ ਉਹ ਖਰਚੇ ਦੀ ਉਦੋਂ ਤੋਂ ਤਾਂ ਸੁਝਾਉਣ ਦਿੱਤੀ ਕਿਸੀ ਦੀ ਵਧੇਰੇ ਸਾਰ ਸੀਤਾ ਸੰਦਰ ਭੇ :
  - (A) ਡੀ. ਕੇ. ਕੋਲੀਓ (B) ਡੀ. ਐੱਸ. ਕੋਲੀਓ
  - (C) ਕੋਲੀਓ-ਕੋਲੀਓ (D) ਡੀ. ਐੱਸ. ਕੋਲੀਓ
- 28. ਸਮਾਜਕ ਸੁਝਾਉਣ ਅਤੇ ਉਹ ਖਰਚੇ ਵਧੇਰੇ ਵਧੇਰੇ :
  - (A) ਉਹਦੀ ਤਾਂ ਸੁਝਾਉਣ
  - (B) ਉਹ ਕੋਲੀਓ ਦੀ ਵਧੇਰੇ
  - (C) ਡੀ. ਐੱਸ. ਕੋਲੀਓ ਦੀ ਵਧੇਰੇ
  - (D) ਸੁਝਾਉਣ ਦੇ ਸਮਾਜ ਤੇ ਉਹ ਸਮਾਜਕੀ ਕਾਰੇ ਸਮਾਜਕੀ ਸੁਝਾਉਣ
- 29. "ਕਮਿਊਨਿਟੀ ਸੇਵਾ ਡੇਵੀ" ਸੁਝਾਉਣ ਉਹ ਉਹ ਸਮਾਜਕ ਸੁਝਾਉਣ ਦੇ ਕਾਰੇ ਸੁਝਾਉਣ ਤੇ ਕਾਰੇ ਵਧੇਰੇ ਵਧੇਰੇ ਵਧੇਰੇ :
  - (A) ਡੀ. ਐੱਸ. ਕੋਲੀਓ (B) ਕੋਲੀਓ ਡੇਵੀ
  - (C) ਸਮਾਜਕੀ ਸੁਝਾਉਣ (D) ਡੀ. ਐੱਸ. ਕੋਲੀਓ
- 30. ਕਾਰੀ ਸਮਾਜਕੀ ਦੇ ਉਹ ਸਮਾਜਕੀ ਉਹ ਉਹ ਸੁਝਾਉਣ ਤੇ ਸੁਝਾਉਣ :
  - (A) ਸੁਝਾਉਣ ਕੋਲੀਓ (B) ਕੋਲੀਓ
  - (C) ਕੋਲੀਓ-ਕੋਲੀਓ ਦੀ ਵਧੇਰੇ ਸਾਰ ਸੁਝਾਉਣ
  - (D) ਉਹਦੇ ਕੋਲੀਓ ਡੇਵੀ ਦੀ ਵਧੇਰੇ
- 31. ਸੁਝਾਉਣ ਸੁਝਾਉਣ ਕੋਲੀਓ ਡੇਵੀ ਉਹ ਸਮਾਜਕੀ ਸੁਝਾਉਣ ਤੇ ਸੁਝਾਉਣ :
  - (A) ਕੋਲੀਓ ਡੇਵੀ ਤੇ ਸੁਝਾਉਣ ਕੋਲੀਓ
  - (B) ਸੁਝਾਉਣ ਕੋਲੀਓ
  - (C) ਸੁਝਾਉਣ ਕੋਲੀਓ
  - (D) ਕੋਲੀਓ ਡੇਵੀ ਤੇ ਸੁਝਾਉਣ ਕੋਲੀਓ
- 32. ਕਾਰੀ ਉਹ ਤਾਂ ਸੁਝਾਉਣ ਤੇ ਉਹ ਸੁਝਾਉਣ ਕੋਲੀਓ :
  - (A) ਉਹ ਸੁਝਾਉਣ ਕੋਲੀਓ ਤੇ ਸੁਝਾਉਣ
  - (B) ਕੋਲੀਓ ਤੇ ਸੁਝਾਉਣ ਕੋਲੀਓ
  - (C) ਕੋਲੀਓ ਕੋਲੀਓ ਕੋਲੀਓ
  - (D) ਕੋਲੀਓ ਤੇ ਸੁਝਾਉਣ ਕੋਲੀਓ
- 33. ਕਾਰੀ ਉਹ ਤਾਂ ਸੁਝਾਉਣ ਤੇ ਉਹ ਸੁਝਾਉਣ ਕੋਲੀਓ :
  - (A) ਸੁਝਾਉਣ ਕੋਲੀਓ
  - (B) ਕੋਲੀਓ
  - (C) ਕੋਲੀਓ-ਕੋਲੀਓ
  - (D) ਕੋਲੀਓ ਕੋਲੀਓ
- 34. ਕਾਰੀ ਉਹ ਤਾਂ ਸੁਝਾਉਣ ਤੇ ਉਹ ਸੁਝਾਉਣ ਕੋਲੀਓ :
  - (A) ਸੁਝਾਉਣ ਕੋਲੀਓ
  - (B) ਕੋਲੀਓ
  - (C) ਕੋਲੀਓ-ਕੋਲੀਓ
  - (D) ਕੋਲੀਓ ਕੋਲੀਓ
- 35. ਕਾਰੀ ਉਹ ਤਾਂ ਸੁਝਾਉਣ ਤੇ ਉਹ ਸੁਝਾਉਣ ਕੋਲੀਓ :
  - (A) 1948 (B) 1950 (C) 1951 (D) 1952
- 36. ਕਾਰੀ ਉਹ ਤਾਂ ਸੁਝਾਉਣ ਤੇ ਉਹ ਸੁਝਾਉਣ ਕੋਲੀਓ :
  - (A) ਸੁਝਾਉਣ 1955 (B) ਸੁਝਾਉਣ 1957
  - (C) ਸੁਝਾਉਣ 1959 (D) ਸੁਝਾਉਣ 2001
- 37. ਉਹ ਸੁਝਾਉਣ ਤੇ ਉਹ ਸੁਝਾਉਣ ਕੋਲੀਓ :
  - (A) ਸੁਝਾਉਣ ਕੋਲੀਓ
  - (B) ਸੁਝਾਉਣ ਕੋਲੀਓ
  - (C) ਸੁਝਾਉਣ ਕੋਲੀਓ
  - (D) ਸੁਝਾਉਣ ਕੋਲੀਓ
- 38. ਕੋਲੀਓ-ਕੋਲੀਓ ਕੋਲੀਓ ਕੋਲੀਓ ਕੋਲੀਓ :
  - (A) ਸੁਝਾਉਣ ਕੋਲੀਓ (B) ਕੋਲੀਓ
  - (C) ਕੋਲੀਓ (D) ਕੋਲੀਓ

- 39. ਉਹਦੀ ਸੁਝਾਉਣ ਕੋਲੀਓ ਕੋਲੀਓ :
  - (A) ਕੋਲੀਓ ਤੇ ਸੁਝਾਉਣ (B) ਕੋਲੀਓ
  - (C) ਕੋਲੀਓ (D) ਕੋਲੀਓ
- 40. ਉਹਦੀ ਸੁਝਾਉਣ ਕੋਲੀਓ :
  - (A) ਸੁਝਾਉਣ-ਕੋਲੀਓ ਤੇ ਸੁਝਾਉਣ ਕੋਲੀਓ
  - (B) ਕੋਲੀਓ ਕੋਲੀਓ ਤੇ ਸੁਝਾਉਣ
  - (C) ਕੋਲੀਓ ਤੇ ਸੁਝਾਉਣ ਕੋਲੀਓ ਕੋਲੀਓ
  - (D) ਕੋਲੀਓ ਕੋਲੀਓ ਕੋਲੀਓ ਕੋਲੀਓ
- 41. ਕੋਲੀਓ ਕੋਲੀਓ (K-10) ਕੋਲੀਓ ਕੋਲੀਓ :
  - (A) ਕੋਲੀਓ (B) ਕੋਲੀਓ
  - (C) ਕੋਲੀਓ (D) ਕੋਲੀਓ
- 42. ਉਹ ਤਾਂ 1952-53 ਕੋਲੀਓ :
  - (A) ਕੋਲੀਓ (B) ਕੋਲੀਓ
  - (C) ਕੋਲੀਓ (D) ਕੋਲੀਓ
- 43. ਉਹ ਤਾਂ 1952-53 ਕੋਲੀਓ :
  - (A) I.L.O (B) M.H.O
  - (C) ਕੋਲੀਓ (D) ਕੋਲੀਓ
- 44. ਕੋਲੀਓ ਕੋਲੀਓ ਤਾਂ ਕੋਲੀਓ ਕੋਲੀਓ, ਕੋਲੀਓ ਕੋਲੀਓ :
  - (A) 1952 (B) 1953
  - (C) 1954 (D) 1955
- 45. ਕੋਲੀਓ ਕੋਲੀਓ ਕੋਲੀਓ, ਕੋਲੀਓ ਕੋਲੀਓ :
  - (A) ਕੋਲੀਓ (B) ਕੋਲੀਓ
  - (C) ਕੋਲੀਓ (D) ਕੋਲੀਓ
- 46. ਕੋਲੀਓ-ਕੋਲੀਓ ਕੋਲੀਓ ਕੋਲੀਓ :
  - (A) ਕੋਲੀਓ (B) ਕੋਲੀਓ
  - (C) ਕੋਲੀਓ (D) ਕੋਲੀਓ
- 47. ਕੋਲੀਓ ਕੋਲੀਓ ਕੋਲੀਓ, ਕੋਲੀਓ ਕੋਲੀਓ :
  - (A) ਕੋਲੀਓ (B) ਕੋਲੀਓ
  - (C) ਕੋਲੀਓ (D) ਕੋਲੀਓ
- 48. ਕੋਲੀਓ ਕੋਲੀਓ ਕੋਲੀਓ, ਕੋਲੀਓ ਕੋਲੀਓ :
  - (A) 5-10 (B) 10-15
  - (C) 15-20 (D) 20-25
- 49. ਉਹ ਤਾਂ ਕੋਲੀਓ ਕੋਲੀਓ ਕੋਲੀਓ :
  - (A) 6 ਕੋਲੀਓ (B) 6-7 ਕੋਲੀਓ
  - (C) 8 ਕੋਲੀਓ (D) 7-8 ਕੋਲੀਓ
- 50. ਕੋਲੀਓ ਕੋਲੀਓ ਕੋਲੀਓ, ਕੋਲੀਓ ਕੋਲੀਓ :
  - (A) 85% (B) 86%
  - (C) 87% (D) 88%



Question Booklet Series : **A** Question Booklet Sr. No. **023016**

## M.Phil. Entrance Test – 2014

Subject : **Police Administration**

**Paper-I**

**Important:** Please consult your Admit Card/Roll No. slip before filling your Roll Number on the Test Booklet and Answer Sheet.

Roll No. *In Figure* *In Words*

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O.M.R. Answer Sheet Serial No.

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Signature of the Candidate \_\_\_\_\_

**Time: 60 minutes**

**Number of Questions: 50**

**Maximum Marks : 50**

### INSTRUCTIONS

1. Write your roll No. on the Question Booklet and also on the OMR Answer Sheet in the space provided and nowhere else.
2. Enter the Code No. of Question Booklet on the OMR answer Sheet. Darken the corresponding bubbles with **Black Ball Point/Black Gel Pen**.
3. Do not make any identification mark on the Answer Sheet or Question Booklet.
4. Please check that this Question Booklet contains 50 questions. In case of any discrepancy, inform the Assistant Superintendent within 10 minutes of the start of test.
5. Each question has four alternative answer (A, B, C, D) of which only one is correct. For each question, darken only one bubble (A or B or C or D), whichever you think is the correct answer, on the Answer Sheet with **Black Ball Point/Black Gel Pen**. **There shall be no negative marking for wrong answers.**
6. If you do not want to answer a question, leave all the bubbles corresponding to that question blank in the Answer Sheet. No marks will be deducted in such cases.
7. Darken the bubbles in the OMR Answer Sheet according to the Serial No. of the questions given in the Question Booklet.
8. If you want to change an already marked answer, erase the shade in the darkened bubble completely.
9. For rough work only the blank sheet at the end of the Question Booklet be used.
10. The Answer Sheet is designed for computer evaluation. Therefore, if you do not follow the instructions given on the Answer Sheet, it may make evaluation by the computer difficult. **Any resultant loss to the candidate on the above account, i.e. not following the instructions completely, shall be of the candidate only.**
11. After the test, hand over the Question Booklet and the Answer Sheet to the Assistant Superintendent on duty.
12. In no case the Answer Sheet, the Question Booklet, or its part or any material copied/ noted from this Booklet is to be taken out of the examination hall. Any candidate found doing so would be expelled from the examination.
13. A candidate who creates disturbance of any kind or changes his/her seat or is found in possession of any paper possibly of any assistance or found giving or receiving assistance or found using any other unfair means during the examination will be expelled from the examination by the Centre Superintendent/Observer whose decision shall be final.
14. **Telecommunication equipment such as pager, cellular phone, wireless, scanner, etc., is not permitted inside the examination hall. Use of calculators is not allowed.**

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(Hindi & Punjabi versions attached)

1. The Latin term 'Politia' from which the word 'Police' has been derived, stands for:

- A) State or Administration  
 B) Polite or Courteous  
 C) Unity of Command or Singular Direction  
 D) Politics or Electoral Process

2. Match the following:

	<u>Central Armed Police Forces</u>	<u>Year of Raising</u>
I.	Border Security Force	(i) 1939
II.	Central Industrial Security Force	(ii) 1962
III.	Central Reserve Police Force	(iii) 1965
IV.	Indo-Tibetan Border Police Force	(iv) 1969

	I.	II.	III.	IV.
A)	(iii)	(ii)	(iv)	(i)
B)	(ii)	(i)	(iv)	(iii)
C)	(ii)	(iv)	(iii)	(i)
D)	(iii)	(iv)	(i)	(ii)

3. 'Police Zone' is headed by an officer of the rank of:

- A) Director General of Police  
 B) Inspector General of Police  
 C) Deputy Inspector General of Police  
 D) Senior Superintendent of Police

4. Which of the following is not a key component of Community Policing?

- A) Community Partnership  
 B) Problem Solving  
 C) Organizational Transformation  
 D) Community Dominance

5. Who introduced the 'Royal Irish Constabulary Model' of Policing in the territory of Sind in 1843?

- A) Sir Jude Williams  
 B) Sir Charles Metcalfe  
 C) Sir Robert Peel  
 D) Sir Charles Napier

6. Match the following:

	<u>Book</u>	<u>Author</u>
I.	The Police and Political Development in India	(i) Shankar Sen
II.	Indian Police Today	(ii) Aparna Srivastava
III.	Indian Police – A Developmental Approach	(iii) Prabhu Datta Sharma
IV.	Role of Police in Changing Society	(iv) David H. Bayley

	I.	II.	III.	IV.
A)	(i)	(ii)	(iii)	(iv)
B)	(iv)	(i)	(iii)	(ii)
C)	(iii)	(iv)	(ii)	(i)
D)	(ii)	(iii)	(iv)	(i)

7. Under the Police Act, 1861, the 'Duties of Police Officers' have been mentioned in:

- A) Section 3  
 B) Section 13  
 C) Section 23  
 D) Section 33



17. Which of the following is true about the Classical School of Criminology?
- It explained crime in terms of biological determination
  - It believed that man commits crime due to influence of some external spirit
  - It placed reliance on free-will
  - It laid greater emphasis on personality of the offender rather than his criminal act
18. The number of crimes per 1,00,00 population is known as:
- Crime Division
  - Crime Indicator
  - Crime Incidence
  - Crime Rate
19. The concept of 'White Collar Crime' found its place in Criminology for the first time in 1941 because of publication of a research paper by:
- Cesare Beccaria
  - Gabriel Tarde
  - E. H. Sutherland
  - Cesare Lombroso
20. Read the following statements about The Juvenile Justice (Care and Protection of Children) Act, 2000 and answer accordingly:
- Chapter II of the Act contains provisions for the 'Juvenile in Conflict with Law'.
  - 'Juvenile' or 'child' means a person who has not completed sixteen years of age.
  - Chapter III of the Act contains provisions for the 'Child in Need of Care and Protection'.
  - Chapter IV of the Act contains provisions for the 'Rehabilitation and Social Integration'.
- I, II and IV are correct
  - I, III and IV are correct
  - Only I and II are correct
  - I, II, III and IV are correct
21. In which year the Code of Criminal Procedure, 1973 was amended?
- 2009
  - 2011
  - 2012
  - 2013
22. According to the Code of Criminal Procedure, 1973 a complaint means:
- Police Report
  - Any allegation made orally to police
  - Any allegation made orally or in writing to a Magistrate
  - A known person has committed an offence against the complainant
23. Which authority can appoint a Judge who presides over Court of Session?
- State Government
  - High Court
  - Supreme Court
  - Public Service Commission
24. The State government can appoint Special Executive Magistrates for
- Particular Areas
  - Performance of particular functions
  - Both A and B
  - None of the Above
25. Evidence may be given of
- Fact in issue
  - Fact in issue and relevant facts
  - Relevant Facts
  - All the facts

26. For what purpose a court can appoint an expert?
- To seek opinion upon a point of foreign law
  - To seek opinion upon a point of science or art
  - To seek opinion as to identity of handwriting
  - All of the above
27. Which one is not an offence against the State under IPC of the following?
- Sedition
  - Waging War against the Government of India
  - Collecting Arms with intention of waging war against the government of India
  - Collecting arms
28. What is the punishment for intentionally giving a false evidence during a judicial proceeding:
- May extend to 3 years
  - May extend to 7 years and fine
  - Not less than 3 year and fine
  - None of the above
29. Who can lodge a FIR?
- Any Person
  - A Victim
  - A Police Officer
  - All of the Above
30. Under what circumstances a police officer can cause a search to be made in any place?
- S/He felt like so
  - S/He has reasonable grounds to believe the necessity
  - If the court think it must
  - None of the above
31. Under Section 172 of the CrPC, the diary of proceedings shall contain
- Statements of witnesses recorded during investigation
  - Places visited during investigation
  - Time of Information received by officer
  - All the above
32. The right to claim bail under section 436 CrPC is a
- Discretionary right
  - Absolute right
  - Optional right
  - All the above
33. Which one of the following is not a scientific technique of investigation?
- Brain Mapping
  - Hand writing
  - Narco Analysis
  - Polygraphs
34. Which one of the following convention is related to terrorism?
- UDHR
  - UNCAT
  - UNTC
  - CRC
35. When a police officer can arrest a person without a warrant to prevent the commission of cognizable offence?
- if the person who design the offence is known
  - if the offence is against the police officer
  - if the offence cannot be otherwise prevented
  - All the above



45. Which of the following are the principal duties of a supervisor?
1. Understanding responsibilities of his position.
  2. Improving work methods and procedures.
  3. Training personnel.
  4. Setting policy guidelines.
- A) 1, 2, 3 are correct                      B) 1, 3 4 are correct  
 C) 2, 3, 4 are correct                      D) All are correct
46. Max Weber refers to which of the following types of bureaucracy?
1. Ideal type of bureaucracy.
  2. Paternalistic type of bureaucracy.
  3. Patrimonial type of bureaucracy.
  4. Rationalist type of bureaucracy.
- A) 1, 2, 3 are correct                      B) 1, 3, 4 are correct  
 C) 1, 3 are correct                          D) 1, 2 and 4 are correct
47. Which of the following writs is issued by an appropriate judicial authority to free a person who has illegally detained?
- A) Mandamus                                  B) Certiorari  
 C) Quo-Warranto                              D) Habeas Corpus
48. The administrative head of the state administration is:
- A) Governor                                    B) Chief Minister  
 C) Chief Secretary                            D) Financial Commissioner
49. When a researcher visits personally to the respondents and fills up the information sheet, the technique is called
- A) Schedule                                    B) Questionnaire  
 C) Interview                                    D) Observation
50. Arrange the stages of report writing in descending order
1. Collection of Data
  2. Formulation of Concepts
  3. Preparation of an Outline
  4. Comparison and Interpretation
- A) 2, 3, 1 and 4                              B) 3, 2, 4 and 1  
 C) 1, 3, 2 and 4                              D) 2, 4, 3 and 1







- (A) कैंडी वेगन (B) उड़ते किल्लर  
(C) लुभर गुमि (D) मिन्डर उर्विग

43. भारत किस देश के निकटतम स्थित है :

1. रूस का किल्ला
  2. इरान के निकट
  3. अफगानिस्तान के निकटतम स्थित
  4. अफगानिस्तान के निकट
- (A) 1, 2, 3 सही हैं (B) 2, 3, 4 सही हैं  
(C) 1, 2, 4 सही हैं (D) सभी सही हैं

44. वाइस और स्टारक संघटनों में :

1. भारत के प्रमुख अर्थी और सभ्यता होते हैं
  2. स्टारक में वाइस कलेक्टर का अधिकार होता है
  3. स्टारक से बहुत लिए लोभाने जाते हैं ताकि वाइस प्रबंधकों को वाइस दे सकें
  4. स्टारक का प्रमुख कार्यकारी अधिकारी होता है
- (A) केवल 1 सही है (B) केवल 2 सही है  
(C) केवल 3 सही है (D) केवल 4 सही है

45. निम्नलिखित में मुख्य कार्यवाही सही-से हैं :

1. अपनी स्थिति की निम्नलिखितों से सम्बन्धित
  2. भारत की स्थितियों और प्रक्रियाओं से सम्बन्धित
  3. कार्यवाही से सम्बन्धित हैं
  4. नीति के दिशा-निर्देश स्थापित करने
- (A) 1, 2, 3 सही हैं (B) 1, 3, 4 सही हैं  
(C) 2, 3, 4 सही हैं (D) सभी सही हैं

46. बैंक बैंक नीतिगत कार्य की निम्न विधियों की मुख्य संकेत करता है :

1. नीतिगत कार्य की मातृ विधि
  2. नीतिगत कार्य की मुख्य विधि
  3. नीतिगत कार्य की अनुबंधित विधि
  4. नीतिगत कार्य की विवेकपूर्ण विधि
- (A) 1, 2, 3 सही हैं (B) 1, 3, 4 सही हैं  
(C) 1, 3, 4 सही हैं (D) 1, 2 और 4 सही हैं

47. बैंककारी तंत्र के मुख्यतः आधार में निम्न करने के लिए उपयुक्त - मातृ कार्यवाही द्वारा सही-से रिजर्व जारी की जाती है :

- (A) दरमा-विधि (B) स्ट्रेण्ड-विधि  
(C) अधिकार-विधि (D) बैंडी प्रत्यक्षीकरण

48. राज्य में उद्योगों का उद्योगीकरण प्रमुख है :

- (A) उद्योग (B) मुख्य शक्ति  
(C) मुख्य शक्ति (D) निम्न अनुभव

49. जब शक्तिगत प्रबंधकों के पास शक्ति होती है और शक्ति-गत से शक्ति है, तो वह शक्ति से शक्ति है :

- (A) अनुभव (B) उद्योगी  
(C) शक्तिगत (D) शक्ति

50. निम्नलिखित में कौनों से नीचे की ओर (इकाई) प्रत्यक्ष तंत्र है :

1. अर्थ उद्योग
2. शक्तिगतों का शक्तिगत
3. शक्तिगत शक्ति
4. मुख्य और शक्तिगत

- (A) 2, 3, 4 और 5 सही हैं  
(B) 3, 2, 4 और 1 सही हैं  
(C) 1, 3, 2 और 4 सही हैं  
(D) 2, 4, 3 और 1 सही हैं





- (A) 1, 2, 3 (B) 1, 2, 3, 4  
 (C) 2, 3, 4 (D) 1, 2, 3, 4
46. ਕਿਸੇ ਸਮੇਂ ਦੇ ਸਭ ਤੋਂ ਜ਼ਿਆਦਾ ਕੰਮ ਕਰਨ ਵਾਲਾ :  
 1. ਮਾਸੂਮੀ ਤੋਸ਼ਾਕਾਂ ਵਾਲੀਆਂ ਫਿਲਮਾਂ ਵਿੱਚ ਕੰਮ ਕਰਨ ਵਾਲਾ  
 2. ਫਿਲਮਾਂ ਵਿੱਚ ਕੰਮ ਕਰਨ ਵਾਲੇ ਕਲਾਕਾਰਾਂ ਦੇ ਕੰਮ ਕਰਨ ਵਾਲੇ  
 3. ਕਲਾਕਾਰਾਂ ਦੇ ਫਿਲਮਾਂ ਵਿੱਚ ਕੰਮ ਕਰਨ ਵਾਲੇ  
 4. ਕੋਈ ਵੀ ਫਿਲਮ-ਕਿਰਦਾਰੀ ਨਹੀਂ ਕਰਦੇ  
 (A) 1, 2, 3 (B) 1, 3, 4  
 (C) 2, 3, 4 (D) ਸਾਰੇ ਸਹੀ ਹਨ
47. ਸੰਸਦ ਦੇ ਦੋ ਮੈਂਬਰਾਂ ਦੀਆਂ ਕਾਰਜਾਂ ਵਿੱਚੋਂ ਕਿਹੜੀ ਸਹੀ ਹੈ :  
 1. ਮੈਂਬਰਾਂ ਦੀ ਸੰਸਦ ਵਿੱਚ  
 2. ਮੈਂਬਰਾਂ ਦੀ ਸੰਸਦ ਵਿੱਚ  
 3. ਮੈਂਬਰਾਂ ਦੀ ਸੰਸਦ ਵਿੱਚ  
 4. ਮੈਂਬਰਾਂ ਦੀ ਸੰਸਦ ਵਿੱਚ  
 (A) 1, 2, 3 (B) 1, 3, 4  
 (C) 1, 3 (D) 1, 2 ਅਤੇ 4
48. ਸੰਸਦ ਦੀ ਸੰਸਦ ਦੀ ਸੰਸਦ ਵਿੱਚ ਕਿਹੜੀ ਸਹੀ ਹੈ :  
 (A) ਸੰਸਦ (B) ਸੰਸਦ  
 (C) ਸੰਸਦ (D) ਸੰਸਦ
49. ਸੰਸਦ ਦੇ ਮੈਂਬਰਾਂ ਦੀ ਸੰਸਦ ਵਿੱਚ ਕਿਹੜੀ ਸਹੀ ਹੈ :  
 (A) ਸੰਸਦ (B) ਸੰਸਦ  
 (C) ਸੰਸਦ (D) ਸੰਸਦ
50. ਸੰਸਦ ਵਿੱਚ ਕਿਹੜੀ ਸਹੀ ਹੈ :  
 1. ਸੰਸਦ ਵਿੱਚ  
 2. ਸੰਸਦ ਵਿੱਚ  
 3. ਸੰਸਦ ਵਿੱਚ  
 4. ਸੰਸਦ ਵਿੱਚ  
 (A) 1, 2, 3 (B) 1, 3, 4  
 (C) 1, 3, 4 (D) 1, 2, 3

Question Booklet Series : **A** Question Booklet Sr. No. **021102**

## M.Phil. Entrance Test – 2014

Subject : **Sociology**

Paper-I

**Important:** Please consult your Admit Card/Roll No. slip before filling your Roll Number on the Test Booklet and Answer Sheet.

Roll No. *In Figure* *In Words*

--	--	--	--	--	--

O.M.R. Answer Sheet Serial No.

--	--	--	--	--	--

Signature of the Candidate \_\_\_\_\_

Time: 60 minutes

Number of Questions: 50

Maximum Marks : 50

### INSTRUCTIONS

1. Write your roll No. on the Question Booklet and also on the OMR Answer Sheet in the space provided and nowhere else.
2. Enter the Code No. of Question Booklet on the OMR answer Sheet. Darken the corresponding bubbles with **Black Ball Point/Black Gel Pen**.
3. Do not make any identification mark on the Answer Sheet or Question Booklet.
4. Please check that this Question Booklet contains 50 questions. In case of any discrepancy, inform the Assistant Superintendent within 10 minutes of the start of test.
5. Each question has four alternative answer (A, B, C, D) of which only one is correct. For each question, darken only one bubble (A or B or C or D), whichever you think is the correct answer, on the Answer Sheet with **Black Ball Point/Black Gel Pen**. **There shall be no negative marking for wrong answers.**
6. If you do not want to answer a question, leave all the bubbles corresponding to that question blank in the Answer Sheet. No marks will be deducted in such cases.
7. Darken the bubbles in the OMR Answer Sheet according to the Serial No. of the questions given in the Question Booklet.
8. If you want to change an already marked answer, erase the shade in the darkened bubble completely.
9. For rough work only the blank sheet at the end of the Question Booklet be used.
10. The Answer Sheet is designed for computer evaluation. Therefore, if you do not follow the instructions given on the Answer Sheet, it may make evaluation by the computer difficult. **Any resultant loss to the candidate on the above account, i.e. not following the instructions completely, shall be of the candidate only.**
11. After the test, hand over the Question Booklet and the Answer Sheet to the Assistant Superintendent on duty.
12. In no case the Answer Sheet, the Question Booklet, or its part or any material copied/ noted from this Booklet is to be taken out of the examination hall. Any candidate found doing so would be expelled from the examination.
13. A candidate who creates disturbance of any kind or changes his/her seat or is found in possession of any paper possibly of any assistance or found giving or receiving assistance or found using any other unfair means during the examination will be expelled from the examination by the Centre Superintendent/Observer whose decision shall be final.
14. **Telecommunication equipment such as pager, cellular phone, wireless, scanner, etc., is not permitted inside the examination hall. Use of calculators is not allowed.**



9. This Social Institution is the central institution of the society, it organizes intimate relationships among adults and socializes new generation. It is
- A) economy  
B) religious institution  
C) family  
D) educational institution
10. An organization in which activities are divided into precisely defined way, roles are arranged in a hierarchy or chain of commands .It is called a/an
- A) army  
B) bureaucracy  
C) church  
D) Government
11. A devaluation of the elderly that results in discrimination against them is called?
- A) Ageism  
B) Sexism  
C) Prejudice  
D) stereotypes
12. Which Classical sociologist stated that every society has a problem with criminality i.e. Crime is normal in Society?
- A) Herbert Spencer  
B) Karl Marx  
C) Max Weber  
D) Emile Durkheim
13. To say that Science is objective means that
- A) Scientists have no personal values  
B) Scientists can set aside their personal values in order to discover the truth  
C) Science is fool proof way to achieve knowledge  
D) Scientists strive to prevent their personal values from affecting their investigation
14. One of the disadvantage of using Observational techniques in sociological research is that
- A) they focus on behaviour in real -life situations where people are not coaxed by the investigator  
B) people behave much as they would if they were not being studied  
C) the data gathered are often difficult to analyze and are dependent on the investigators own interpretations  
D) they can only be used to study very large numbers of people
15. Which of the following Sociologist took position that sociology should remain a value free science?
- A) Alvin Gouldner  
B) Max weber  
C) Karl Marx  
D) Emile Durkheim
16. The statement "A society is a system made up of interrelated and interdependent parts, each contributing to the operation of the whole " would be most consistent with
- A) Functionalist perspective  
B) Conflict perspective  
C) Ethnomethodology  
D) Interactionist perspective



17. People who are related by virtue of marriage, such as husband and wife are called
- A) Consanguineal kins                      B) Affinal kins  
C) Bilateral Kins                            D) Exogamous kins
18. The process through which the influence of religion is removed from many institutions in society and dispersed into private realms is called
- A) Modernization                            B) Emergence of Civil Religion  
C) Secularization                            D) Profanity
19. C. Wright Mills is credited with developing the
- A) Iron Law of Oligarchy                    B) Power Elite model  
C) Pluralist model                            D) none of the above
20. Which of the following is not a distinguishing feature of Capitalism?
- A) means of production & distribution are privately held  
B) goods and services that people need are produced and equitably distributed  
C) there is a free competition among producers and consumers of goods  
D) each person possess a right to share societal resources
21. Theoretical perspective that focuses on every day social interaction among individuals rather than on large societal structures such as politics and education
- A) Interactionist                              B) Functionalist  
C) Conflict                                      D) Neo Functionalist
22. Mixed economies are based on a mixture of
- A) Capitalism & Communism                B) Socialism & Communism  
C) Capitalism & Socialism                 D) Socialism & Laissezfaire
23. The study of the size, composition and distribution of human population and how these factors change over time is termed
- A) Social ecology                            B) Demography  
C) Population dynamics                    D) Morphology
24. The conflict perspective has been criticized for
- A) overemphasizing the prevalence of stability in society  
B) its conservative approach which supports existing social conditions  
C) disregarding the prevalence of stability in society  
D) downplaying the fact that social practices beneficial to one group may be dysfunctional for another group
25. The ranking of people into a hierarchy in which the resources considered valuable by society are unequally distributed is referred to as
- A) Social structure                            B) social stratification  
C) status inconsistency                      D) Socio-economic status

26. The best single predictor of people's life styles is their
- A) age  
B) socioeconomic status  
C) income  
D) degree of social participation
27. Ceremonies that make and celebrate people's transitions from one status to another are called
- A) rites of passage  
B) life rituals  
C) puberty rites  
D) age rituals
28. When new researchers use data sets from other researchers it is called
- A) primary data  
B) secondary data  
C) personal data  
D) official data
29. When a member of the same generation changes over to new occupation of high prestige it is called
- A) Intra- generational mobility  
B) Inter-generational mobility  
C) Educational mobility  
D) Occupational mobility
30. Sociologists Louis Wirth argued that Urban Life shapes city dwellers by creating
- A) an associational point of view  
B) a community feeling  
C) an "urban Consciousness"  
D) a "city Group"
31. In studying Suicide, Durkheim used
- A) Surveys  
B) Experiments  
C) Observation  
D) Government Statistics
32. According to Malthus's views of human population growth
- A) human interventions would be effective in controlling Population Growth  
B) Contraceptive was the ultimate answer to control population  
C) Population would continue to grow ultimately checked by deaths due to starvation, disease and war  
D) powerful Capitalists would benefit from restrictions in the food supply
33. In Observing the urban development of the city of Chicago during the 1920s Sociologists Robert Park, Burgess, E & R. Mckenzie formulated which is called
- A) concentric zone theory  
B) sector theory  
C) multiple nuclei theory  
D) the theory of transition
34. The process of cities growing outward from their central regions creating 'additions' is referred to as
- A) Urbanization  
B) Sub-urbanization  
C) Migration  
D) Metropolitanisation



42. Which of the following is not a feature of globalization?
- A) Increasing awareness of the world as a whole.  
 B) The extended power of nation states.  
 C) Destruction of distance through communication technologies.  
 D) Stretching social relations beyond national boundaries.
43. Triangulation involves:
- A) Collecting data from a variety of different sources.  
 B) Consulting the works of three other researchers.  
 C) Consulting the works of authors with the same perspective as the researcher.  
 D) The use of three different research tools in one study.
44. Auguste Comte called the forces that societies contain for conflict and change
- A) social statics                      B) social dynamics  
 C) social evolution                  D) social equilibrium
45. The most important source of sex role socialization has been and remains
- A) Family                              B) peer -group  
 C) Media                                D) all the above
46. Which of the following is not a function of research design?
- A) guiding the process of collecting, analyzing and interpreting data  
 B) enabling the researcher to draw inferences of cause-effect relationships  
 C) selecting a topic of research  
 D) determining whether research findings can be generalized to a large population or to different situations
47. Who is called the 'Crusader of Dalits'?
- A) Mahatma Gandhi                  B) Jawahar Lal Nehru  
 C) Babu Jagjivan Ram                D) B.R. Ambedkar
48. This theory divides all countries into core, peripheral and semi-peripheral nations, in which the more developed nations keep the less developed in a weak and dependent position.
- A) global-dominance theory              B) multi-national control theory  
 C) world system theory                  D) neo-modern growth theory
49. A group of theories holding that industrial nations keep Third world nations in a dependent position to maintain the advantages of industrial nations
- A) commercial exploitation theories  
 B) dependency theories  
 C) economic superiority theories  
 D) none of the above
50. Identify Series I (Theorists) with Series II (contribution) and select the correct answer using code given below:

<i>Series I</i> (Theorists)	<i>Series II</i> (Contribution)
a. Talcott Parsons	1. Positivism
b. Erving Goffman	2. Structuration theory
c. Auguste Comte	3. Pattern Variables
d. Anthony Giddens	4. Total Institution
A) a-3, b- 4, c- 1, d- 2	B) a-3, b-4, c- 2, d- 1
C) a-2, b- 3, c- 1, d- 4	D) a-4, b- 1, c- 3, d- 2





'कारणीय विकास' पर पहली बार किश ने कहा था :

- (A) विश्व स्वास्थ्य संगठन (B) UNESCO
  - (C) एनडीए और विकास पर विश्व भाषा (D) UNICEF
- कारणीय विकास और विकास पर प्रथम अंतरराष्ट्रीय सम्मेलन के सिद्धान्त को कहा है :
- (A) बहु-आयामी सिद्धान्त (B) संघर्ष सिद्धान्त
  - (C) उन्मुखीकरण सिद्धान्त (D) संरचनावादी

संघर्ष सिद्धान्त के प्रति संरचनावादी किश का नज़र है किश :

- (A) सामाजिक विभेदीकरण और कृषाकृत
- (B) वर्ग और अल्पसंख्यक शक्ति संबंध
- (C) श्रम और अश्रम का संरचनात्मक विश्लेषण
- (D) उन्मुखीकरण एकता और विभेदीकरण

कारणीय विकास के विकास सिद्धान्तों से सौज-सौ समाज-विज्ञानी संबंधित किश का मत है :

- (A) टेंडेंसी वर्जिन (B) टेंडेंसी वर्जिन
  - (C) टेंडेंसी वर्जिन (D) टेंडेंसी वर्जिन
- कारणीय विकास का लक्ष्य सौज-सौ नहीं है :
- (A) संघर्ष और पर विश्व की नई रचना
  - (B) श्रम-शक्तियों की विस्तारित शक्ति
  - (C) संघर्ष टेंडेंसी वर्जिन से श्रम का विकास
  - (D) संघर्ष लक्ष्यों से पर सामाजिक संबंधों को फैलाना
- कारणीय विकास के सिद्धांत हैं :
- (A) विभिन्न प्रकार के लोगों से उठा उभरना करना
  - (B) तीन अन्य शोधकर्ताओं के साथों में विचार
  - (C) शोधकर्ता जैसे समाज परिशोधन करने क्षेत्रों के साथों पर विचार करना
  - (D) एक संघर्ष से तीन अन्य शोधकर्ताओं का अर्थ

कारणीय और परिवर्तन के लिए समाजों के जो कर्मियों होजे हैं उनमें अंगरेज कामने करना है :

- (A) सामाजिक स्वयंसेवी
- (B) सामाजिक शक्ति
- (C) सामाजिक क्रम-विकास
- (D) सामाजिक संयुक्त

कारणीय विकास के समाजीकरण का सर्वाधिक महत्वपूर्ण क्षेत्र रहा है और रचना है :

- (A) परिवार (B) लीयर-संगठ
- (C) मीडिया (D) उपर्युक्त सभी

कारणीय विकास का कार्य सौज-सौ नहीं है :

- (A) उठा में उभरना करना, विज्ञानजन करने और अंगरेज करने में निर्देशित करना
- (B) शोधकर्ता को मारना-प्रभाव संबंधों के निर्माण विकासने के प्रोग्राम बनाना
- (C) शोध के विषय का चयन करना
- (D) पर निर्धारित करना कि क्या शोध की उन्मुखीकरणों का विस्तार अंगरेज अथवा विभिन्न स्थितियों के लिए सामाजिकीकरण किया जा सकता है

'कारणीय विकास' किशो कहा जाता है

- (A) नारायण गोंधी (B) अंगरेज लाल नारायण
- (C) नानू जगजीवन राव (D) बी.आर. अंबेडकर

पर सिद्धान्त सभी देशों का विकास, श्रम, परिवर्तन और सर्वा-परिधीय संघर्षों में करना है किश के मध्यम सिद्धांत संघर्ष अन्वयिकीकरण संघर्षों को समाज और अंगरेज स्थिति से रखने हैं :

- (A) विश्व-सुख सिद्धान्त
- (B) बहु-आयामी विमर्श सिद्धान्त
- (C) विश्व संघ सिद्धान्त
- (D) नर-आधुनिक श्रम सिद्धान्त

49. सिद्धान्त-संगठ को यह समझना है कि अंगरेजिक संघर्षों के लक्ष्यों को नरमवार रखने के लिए अंगरेजिक संघर्ष नीतरी दुनिया के संघर्षों को पराजित स्थिति में रखने हैं :

- (A) व्यापारिक शोका सिद्धान्त
- (B) परकीय सिद्धान्त
- (C) आर्थिक अंगरेज सिद्धान्त
- (D) उपर्युक्त में से कोई भी नहीं है

50. लक्ष्य-1 (सिद्धान्तवादी) का लक्ष्य-11 (संगठ) से अंगरेज करने और निम्नलिखित सौज का प्रयोग करने हुए लक्ष्य उत्तर का चयन करें :

लक्ष्य-1 (सिद्धान्तवादी)	लक्ष्य-11 (संगठ)
a. रेल्फोर्ड कार्मिन	1. प्रथम संघ
b. अर्थिक शोका	2. संरचनात्मक सिद्धान्त
c. अंगरेज कामने	3. वेदनी परिवर्तन
d. एन्वय सिद्धान्त	4. संघर्ष संस्था

(A) a-3, b-4, c-1, d-2  
 (B) a-3, b-4, c-2, d-1  
 (C) a-2, b-3, c-1, d-4  
 (D) a-4, b-1, c-3, d-2









Question Booklet Series : **A** Question Booklet Sr. No. **033017**

## Ph.D. Entrance Test – 2014

Subject : Anthropology

Paper-I

**Important:** Please consult your Admit Card/Roll No. slip before filling your Roll Number on the Test Booklet and Answer Sheet.

Roll No. *In Figure* *In Words*

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O.M.R. Answer Sheet Serial No.

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Signature of the Candidate \_\_\_\_\_

Time: 60 minutes

Number of Questions: 50

Maximum Marks : 50

### INSTRUCTIONS

1. Write your roll No. on the Question Booklet and also on the OMR Answer Sheet in the space provided and nowhere else.
2. Enter the Code No. of Question Booklet on the OMR answer Sheet. Darken the corresponding bubbles with **Black Ball Point/Black Gel Pen**.
3. Do not make any identification mark on the Answer Sheet or Question Booklet.
4. Please check that this Question Booklet contains 50 questions. In case of any discrepancy, inform the Assistant Superintendent within 10 minutes of the start of test.
5. Each question has four alternative answer (A, B, C, D) of which only one is correct. For each question, darken only one bubble (A or B or C or D), whichever you think is the correct answer, on the Answer Sheet with **Black Ball Point/Black Gel Pen**. There shall be no negative marking for wrong answers.
6. If you do not want to answer a question, leave all the bubbles corresponding to that question blank in the Answer Sheet. No marks will be deducted in such cases.
7. Darken the bubbles in the OMR Answer Sheet according to the Serial No. of the questions given in the Question Booklet.
8. If you want to change an already marked answer, erase the shade in the darkened bubble completely.
9. For rough work only the blank sheet at the end of the Question Booklet be used.
10. The Answer Sheet is designed for computer evaluation. Therefore, if you do not follow the instructions given on the Answer Sheet, it may make evaluation by the computer difficult. **Any resultant loss to the candidate on the above account, i.e. not following the instructions completely, shall be of the candidate only.**
11. After the test, hand over the Question Booklet and the Answer Sheet to the Assistant Superintendent on duty.
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13. A candidate who creates disturbance of any kind or changes his/her seat or is found in possession of any paper possibly of any assistance or found giving or receiving assistance or found using any other unfair means during the examination will be expelled from the examination by the Centre Superintendent/Observer whose decision shall be final.
14. **Telecommunication equipment such as pager, cellular phone, wireless, scanner, etc., is not permitted inside the examination hall. Use of calculators is not allowed.**



11. The genetic control of shape is:
- |                                    |                                    |
|------------------------------------|------------------------------------|
| A) More rigorous than that of size | B) Less rigorous than that of size |
| C) Equal to that of size           | D) Independent of size             |
12. In humans hypothermia begins when core body temperature:
- |                       |                       |
|-----------------------|-----------------------|
| A) Falls below 94° F  | B) Falls below 32° F  |
| C) Rises above 105° F | D) Rises above 120° F |
13. Hypoxia begins to occur at:
- |                           |                           |
|---------------------------|---------------------------|
| A) 1 – 2 miles altitude   | B) Above 2 miles altitude |
| C) Above 3 miles altitude | D) Above 5 miles altitude |
14. Flake tools are dominant in:
- |                       |                        |
|-----------------------|------------------------|
| A) Lower palaeolithic | B) Middle palaeolithic |
| C) Upper palaeolithic | D) Chalcolithic        |
15. Increase in the number of WBC is referred as:
- |               |                 |
|---------------|-----------------|
| A) Leukopenia | B) Leukemia     |
| C) Anaemia    | D) Polycythemia |
16. Slightly movable bone joint is called:
- |                |                   |
|----------------|-------------------|
| A) Hinge joint | B) Synovial joint |
| C) Suture      | D) Symphysis      |
17. Goiter is caused due to deficiency of:
- |               |             |
|---------------|-------------|
| A) Calcium    | B) Fluorine |
| B) Phosphorus | D) Iodine   |
18. First phase of embryonic development is:
- |                  |                 |
|------------------|-----------------|
| A) Fertilization | B) Cleavage     |
| C) Gametogenesis | D) Gastrulation |
19. Polymorphism is mainly due to:
- |              |                        |
|--------------|------------------------|
| A) Metaphase | B) Anaphase            |
| B) Prophase  | D) Embryonic formation |
20. Genes with multiple phenotypic effects are called:
- |                      |                   |
|----------------------|-------------------|
| A) Pleiotropic genes | B) Active genes   |
| C) Polygenes         | D) Dominant genes |
21. Dryopithecines were considered common ancestors of:
- |                     |                 |
|---------------------|-----------------|
| A) Apes and monkeys | B) Apes and man |
| C) Man and monkeys  | D) Apes         |

(3)

22. Man shares the process of growth with all animals, but in one respect he is unique, that is:
- A) Prolonged period of infancy and childhood
  - B) Enlargement of cells during post-natal growth
  - C) High rate of growth in weight of fetus
  - D) High velocity of growth in length in fetus
23. The term LBM is used to describe:
- A) Fat + mineral skeleton + cells
  - B) Cells + extra cellular fluid + fat
  - C) Cells + fat
  - D) Cells + extra cellular fluid + mineral skeleton
24. Which of the following is a method by which human bodies successfully adjust to hot climates:
- A) Evaporation of sweat from skin surface
  - B) Increased fat layers under the skin for insulation
  - C) Increased consumption of high calorie foods
  - D) By convection
25. Half-life period of  $C^{14}$  is:
- A) 7350 years
  - B) 5730 years
  - C) 5703 years
  - D) 3750 years
26. A family consisting of a married couple and their unmarried children is known as
- A) Joint family
  - B) Extended family
  - C) Nuclear family
  - D) Nuclear-extended family
27. Which of the following are the modes of acquiring wife?
- A) Progency price
  - B) Suitor Service
  - C) Gift exchange
  - D) Marriage by capture
28. Identify the correct sequence of Purusharthas in Hindu tradition.
- A) Dharma-Artha-Kama-Moksha
  - B) Dharma-Artha- Moksha -Kama
  - C) Moksha-Kama-Artha- Dharma
  - D) Artha-Kama-Moksha- Dharma

29. Match an item in List-I with an item in List-II. Use the codes given below:

<u>List-I</u>		<u>List-II</u>	
A)	G. Chattopadhyay	I.	Gopalpur
B)	L.P. Vidyarthi	II.	Shamirpet
C)	S.C. Dubey	III.	Ghaghar
D)	Alan Beals	IV.	Ranjana

Codes:

	(a)	(b)	(c)	(d)
A)	IV	III	II	I
B)	IV	II	III	I
C)	I	III	IV	II
D)	II	I	IV	III

30. Identify the correct sequence in the descending order of social divisions in Tribal society.

- A) Families—Clans—Sub-tribes—Tribe  
 B) Tribe—Sub-tribes—Clans—Families  
 C) Clans—Families—Tribe—Sub-tribes  
 D) Sub-tribes—Tribe—Families—Clans

31. Match an item in List-I with an item in List-II. Use the codes given below:

<u>List-I</u>		<u>List-II</u>	
A)	Universalization and Parochialization	I.	M.N. Srinivas
B)	Little and Great Tradition	II.	L.P. Vidyarthi
C)	Sacred Complex	III.	Robert Redfield
D)	Dominant Caste	IV.	Mckim Marriott

Codes:

	(a)	(b)	(c)	(d)
(A)	II	I	IV	III
(B)	III	IV	I	II
(C)	IV	III	II	I
(D)	I	II	III	IV

32. Which of the following features define 'Tribe' as an ideal construct?

- A) Economic specialization  
 B) Egalitarianism  
 C) Integrated character  
 C) Class formation

Codes:

- A) I and II are correct  
 B) I, II and III are correct  
 C) II and III are correct  
 D) II, III and IV are correct

33. Give the correct sequence of the following:

- A) Tribe—Band—Chiefdom—State
- B) Tribe—Chiefdom—Band—State
- C) Band—Chiefdom—State—Tribe
- D) Band—Tribe—Chiefdom—State

34. Identify the correct sequence of the following given by George James Frazer:

- A) Magic—Religion—Science
- B) Religion—Science—Magic
- C) Science—Religion—Magic
- D) Religion—Magic—Science

35. Match an item in List-I with an item in List-II. Use the codes given below:

List-I

List-II

- |             |      |   |
|-------------|------|---|
| A) Shaman   | I.   | One who uses supernatural powers for anti-social purposes                             |
| B) Priest   | II.  | One who has the capacity to call spirits to kill or cause harm                        |
| C) Sorcerer | III. | Religious functionary whose authority is bestowed upon him by the society             |
| D) Witch    | IV.  | A religious specialist who receives the power directly from the super natural sources |

Codes:

- |    | (a) | (b) | (c) | (d) |
|----|-----|-----|-----|-----|
| A) | IV  | III | I   | II  |
| B) | I   | II  | III | IV  |
| C) | IV  | III | II  | I   |
| D) | II  | III | IV  | I   |

36. The term 'Vote Bank' was coined by

- |                   |                   |
|-------------------|-------------------|
| A) Andre Beteille | B) S.C. Dubey     |
| C) M.N. Srinivas  | D) L.P. Vidyarthi |

37. The percentage of the Scheduled Tribe Population as per Census 2001 of India was

- |         |         |
|---------|---------|
| A) 6.2% | B) 7.2% |
| C) 8.2% | D) 9.2% |

38. Those aspects of society that are considered ordinary, having no special religious significance, is known as

- |            |              |
|------------|--------------|
| A) Profane | B) Sacred    |
| C) Secular | D) Spiritual |



39. Which among the following are considered as property among the most vulnerable tribal societies?

- |                           |                               |
|---------------------------|-------------------------------|
| I. Land                   | II. Cattle                    |
| III. Tools and implements | IV. Precious metals ornaments |

Codes:

- (A) I, II and IV are correct  
 (B) II, III, IV and I are correct  
 (C) III, IV and I are correct  
 (D) I, II and III are correct
40. Identify the correct sequence of development of economic pursuits among the following categories:

- A) Fishing—Gathering and Hunting—Cultivation—Pastoralism  
 B) Pastoralism—Cultivation—Gathering and Hunting—Fishing  
 C) Gathering and Hunting—Fishing—Pastoralism—Cultivation  
 D) Cultivation—Pastoralism—Fishing—Gathering and Hunting

41. The approach to 'New Archaeology' was propounded by

- |                 |                     |
|-----------------|---------------------|
| A) L.R. Binford | B) V. Gordon Childe |
| C) Graham Clark | D) D.L. Clarke      |

42. The Sohan culture of Northwestern India is characterized by

- A) Ground and polished tools  
 B) Pebble dominated stone tool industry  
 C) Flake dominated stone tool industry  
 D) Blade dominated stone tool industry

43. Find out the West Asian Neolithic sites from the enlisted

- |                |                |
|----------------|----------------|
| 1. Jericho     | 2. Spirit cave |
| 3. Catal Huyuk | 4. Banchiang   |

Codes:

- |            |            |
|------------|------------|
| A) 1 and 2 | B) 1 and 3 |
| C) 1 and 4 | D) 2 and 4 |
44. Given below are two statements, one is labelled as Assertion (A) and the other is labelled as Reason (R).

Assertion (A): The Indian Megalithic culture is characterized by several burial types

Reason (R): The plurality of burial types was due to the biophysical Characters of people, their languages and case segregations.

On the basis of the above, choose the correct answer:

Codes:

- |                                     |                                     |
|-------------------------------------|-------------------------------------|
| A) Both (A) and (R) are correct     | B) (A) is correct, but (R) is wrong |
| C) (A) is wrong, but (R) is correct | D) Both (A) and (R) are wrong       |

45. Arrange the tool-types in progressive technological scheme.
- A) Abbevillian—Acheulean—Backed blade—Levalloise point  
 B) Abbevillian—Acheulean—Levalloise point—Backed blade  
 C) Acheulean—Abbevillian—Levalloise point—Backed blade  
 D) Acheulean—Levalloise point—Backed blade—Abbevillian
46. Harappan civilization extends from Ropar to Sutagendor. The Harappan site located in Haryana is
- A) Kalibangan  
 B) Mitathal  
 C) Kotdiji  
 D) Lothal
47. Which among the following is an upper Palaeolithic site of India
- A) Vadamadurai  
 B) Birbhanpur  
 C) Adangarh  
 D) Renigunta
48. Earliest evidence of domestication of dog was found at:
- A) Jericho  
 B) Maglamosian  
 C) Piklihal  
 D) Tardenoisian
49. Arrange the following methods of dating in order in which they were discovered:
- I. Varve Analysis  
 II. Radio Carbon  
 III. Stratigraphy  
 IV. Racemization
- Codes:
- A) I II III IV  
 B) III I IV II  
 C) III II I IV  
 D) IV II I III
50. Given below are two statements, one is labelled as Assertion (A) and the other is labelled as Reason (R).
- Assertion (A): Mousterian tradition represents a transition between lower and upper Palaeolithic in Western Europe.
- Reason (R): It shows different facies with elements of both lower and upper Palaeolithic.
- In the context of the above two statements, which one of the following is correct?
- Codes:
- A) Both (A) and (R) are correct.  
 B) (R) is correct but (A) is wrong.  
 C) Both (A) and (R) are wrong.  
 D) (R) is wrong, but (A) is correct

Question Booklet Series : **A** Question Booklet Sr. No. **034072**

## Ph.D./M.Phil. Entrance Test – 2014

Subject : **Botany**

Paper-I

**Important:** Please consult your Admit Card/Roll No. slip before filling your Roll Number on the Test Booklet and Answer Sheet.

Roll No.

*In Figure*

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*In Words*

O.M.R. Answer Sheet Serial No.

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*Signature of the Candidate* \_\_\_\_\_

**Time: 60 minutes**

**Number of Questions: 50**

**Maximum Marks : 50**

### INSTRUCTIONS

1. Write your roll No. on the Question Booklet and also on the OMR Answer Sheet in the space provided and nowhere else.
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1. When one end of a petal overlaps that of the next, the aestivation is known as
  - A. Valvate
  - B. Imbricate
  - C. Twisted
  - D. Vaxillary
2. Pollination in *Eichhornia* is carried out by
  - A. Insects
  - B. Water
  - C. Birds
  - D. Bats
3. Inflorescence is cymose in
  - A. Pea
  - B. Wheat
  - C. Onion
  - D. Mulberry
4. Prokaryotic cell differs from a eukaryotic cell in having
  - A. Ribosomes
  - B. Mesosomes
  - C. Cyclosis
  - D. Nucleus
5. Centrioles are not present in cells of
  - A. *Euglena*
  - B. *Plasmodium*
  - C. *Paramecium*
  - D. Sperm
6. Flagellated reproductive cells (zoospores/gametes) are not present in
  - A. *Zygnema*
  - B. *Oedogonium*
  - C. *Ectocarpus*
  - D. *Ulva*
7. Sexual reproduction among fungi normally occurs through
  - A. Conidiospores
  - B. Auxospores
  - C. Zoospores
  - D. Oospores

8. Arachidonic acid is an essential fatty acid as it is
  - A. A component of unsaturated fats
  - B. Synthesised by hydrogenation of unsaturated fatty acid
  - C. Essential component of protoplasm
  - D. Not synthesised in cell
9. Mitochondrion was referred as bioplast by Altman as it is
  - A. Filamentous
  - B. Endosymbiont
  - C. Plastid like in structure
  - D. Organelle with its own DNA
10. Under unfavourable conditions, plasmodium in slime moulds differentiates into fruiting bodies bearing spores. Which one of the followings is incorrect for these spores?
  - A. Develop at tips of fruiting bodies
  - B. Possess pseudo walls
  - C. Survive for many years
  - D. Dispersed by air
11. Which of the following sequence is correct for Krebs's cycle?
  - A. Citric acid, oxaloacetic acid and succinic acid
  - B. Succinic acid, Acetyl CoA and citric acid
  - C. Fumaric acid, malic acid and oxaloacetic acid
  - D.  $\alpha$ -Ketoglutaric acid, oxaloacetic acid and succinic acid
12. Which one of the statements is incorrect?
  - A. Meiosis produces haploid cells
  - B. Genetic recombination occurs during meiosis
  - C. Meiosis is helpful in evolution process
  - D. Meiosis maintains chromosome number constant
13. The fluid mosaic model of plasma membrane differs from lamellar model in
  - A. Having globular proteins
  - B. Number of lipid layers
  - C. Suggesting static nature
  - D. Having carbohydrates
14. Which of the following is part of coenzyme FMN?
  - A. Vitamin B1
  - B. Vitamin B2
  - C. Vitamin B5
  - D. Vitamin B12

15. Which of the following are correct?
1. Chloroplasts contain ribosomes.
  2. Ribosomes are without limiting membrane and nucleic acid.
  3. 80 S ribosomes are found in cells of Protista.
  4. Ribosomes were discovered by Porter et al. in 1840.
- A. 1 and 2  
B. 2 and 3  
C. 1 and 3  
D. 1 and 4
16. Which organelle is expected to be more in number in secretory cells?
- A. Lysosomes  
B. Dictyosomes  
C. Vacuoles  
D. Sphaerosomes
17. Chlorophyll *a* is characterized by which side group?
- A. Methyl  
B. Aldehyde  
C. Phytol  
D. Ketone
18. Free living but anaerobic nitrogen fixing microbe is
- A. *Azotobactor*  
B. *Frankia*  
C. *Beijernickia*  
D. *Rhodospirillum*
19. Which of the following is incorrect?
- A. All solutions have lower water potential than pure water.  
B. More the solute molecules in a solution, more is the solute potential  
C. Water potential is equal to solute potential for a solution at atmospheric pressure  
D. Pressure potential is negative in xylem and helps in upward movement of water in plants
20. What is correct about Calvin cycle?
- A. It occurs in mesophyll cells of C3 plants only  
B. It occurs in bundle sheath cells of C4 plants only  
C. It occurs in mesophyll cells of both C3 and C4 plants  
D. It occurs in mesophyll cells of C3 plants and bundle sheath cells of C4 plants
21. Which of the following is a set of synthetic auxins?
- A. Indole acetic acid and Naphthalene acetic acid  
B. Indole acetic acid and Indole butyric acid  
C. Indole butyric acid and 2, 4- dichlorophenoxy acetic acid  
D. Naphthalene acetic acid and 2, 4- dichlorophenoxy acetic acid
22. Which one of the following auxins is widely used to remove dicot weeds only?
- A. 2, 4- dichlorophenoxy acetic acid  
B. Indole acetic acid  
C. Naphthalene acetic acid  
D. Indole butyric acid

23. Chloroplast endoplasmic reticulum membrane is absent in the phylum
- A. Phaeophyta
  - B. Englenophyta
  - C. Cryptophyta
  - D. Chlorophyta
24. A closed fruit body having no pre-defined opening but with asci arranged in a single basal fascicle is called
- A. Calyculus
  - B. Capillitium
  - C. Cephalodium
  - D. Chasmothecium
25. Perithecium is a
- A. Closed ascocarp with a pore at the top
  - B. Basidium divided into 4 cells cruciately
  - C. Ascocarp which is completely closed
  - D. Open ascocarp
26. What percentage of cytosine would be there in a DNA molecule having 15% of adenine?
- A. 15
  - B. 30
  - C. 35
  - D. 85
27. In an angiosperm, the female gametophyte is represented by
- A. Embryo sac
  - B. Egg apparatus
  - C. Secondary nucleus
  - D. Endosperm
28. Type of placentation in marigold is
- A. Free central
  - B. Basal
  - C. Marginal
  - D. Parietal
29. Edible part in coconut is
- A. Epicarp
  - B. Mesocarp
  - C. Endocarp
  - D. Seed
30. In monocots, plumule in seed is covered over by
- A. Scutellum
  - B. Aleurone layer
  - C. Coleoptile
  - D. Coleorrhiza

31. The casparian strip present in the endodermis of roots is chemically composed of
- Cutin
  - Suberin
  - Pectin
  - Xylan
32. Most primitive angiosperm is
- Magnolia*
  - Sphaerocarpos*
  - Galanthus*
  - Wolffia*
33. *Cladonia rangifera*, commonly called reindeer moss is a
- Moss
  - Lichen
  - Pteridophyte
  - Red alga
34. Ethylene signalling is regulated
- Negatively
  - Positively
  - Locally
  - Systematically
35. *Triticum aestivum*, used as bread is
- Diploid
  - Triploid
  - Tetraploid
  - Hexaploid
36. In the creation of a microarray (biochip), fragments of DNA are placed on a
- Microscope slide
  - Circuit board
  - Silicon chip
  - Cell membrane
37. Proteomics is the study of
- Regulating proteins in plants
  - Structural proteins of a cell
  - Gene-transcribing proteins
  - All proteins in an organism
38. Increased genetic diversity following extended time in a tissue culture is a problem called
- Temporal modification
  - Somaclonal variation
  - Gene alteration
  - Culture shock
39. To produce plants that are homozygous for all traits, the best choice is
- Anther/pollen culture
  - Cell suspension culture
  - Callus culture
  - Protoplast culture



40. If you want to use a plant tissue culture in a chemical factory for vitamins, choose
- Suspension cultures
  - Callus cultures
  - Organ cultures
  - Protoplast cultures
41. Which one of the following is a set of synthetic auxins?
- IAA and NAA
  - IAA and IBA
  - IBA and 2,4-D
  - NAA and 2,4-D
42. In order to have early seed production in conifers, which of the following PGRs will be sprayed on juveniles?
- IAA
  - Ethylene
  - ABA
  - Gibberelins
43. Which one of the following is referred to as the walking fern?
- Ginkgo*
  - Sphagnum*
  - Camptosorus*
  - Funaria*
44. Which factor is not a limiting factor in normal conditions for photosynthesis?
- Sunlight
  - Chlorophyll content in leaf
  - Water in plant cell
  - CO<sub>2</sub> in atmosphere
45. Plant species having a wide range of genetic distribution evolve into a local population known as
- Eco-type
  - Biome
  - Centre of origin
  - Ecosystem
46. Biodiversity
- Decreases towards equator
  - Increases towards equator
  - Has no effect due to change in latitude
  - Remains same throughout the planet
47. The term 'Embolism' in xylem transport refers to
- Transport of water through vessels only
  - Blockage of xylem elements
  - Fast transport of water
  - Bubble formation in xylem elements

48. Which one of the fossil types mainly represented Rhynie Chert flora?

- A. Casts
- B. Compaction
- C. Petrification
- D. Coal Balls

49. Which one is an ex situ method of biodiversity conservation?

- A. Wildlife sanctuaries
- B. Biosphere reserves
- C. Germplasm banks
- D. National parks

50. Which term indicates ecological community the best way?

- A. Ecosphere
- B. Biogeocoenosis
- C. Biosphere
- D. Biocoenosis

Question Booklet Series : **A** Question Booklet Sr. No. 035067

## Ph.D. Entrance Test – 2014

Subject : **Bio-Chemistry**

Paper-I

**Important:** Please consult your Admit Card/Roll No. slip before filling your Roll Number on the Test Booklet and Answer Sheet.

Roll No. *In Figure* *In Words*

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O.M.R. Answer Sheet Serial No.

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Signature of the Candidate \_\_\_\_\_

Time: 60 minutes

Number of Questions: 50

Maximum Marks : 50

### INSTRUCTIONS

1. Write your roll No. on the Question Booklet and also on the OMR Answer Sheet in the space provided and nowhere else.
2. Enter the Code No. of Question Booklet on the OMR answer Sheet. Darken the corresponding bubbles with **Black Ball Point/Black Gel Pen**.
3. Do not make any identification mark on the Answer Sheet or Question Booklet.
4. Please check that this Question Booklet contains 50 questions. In case of any discrepancy, inform the Assistant Superintendent within 10 minutes of the start of test.
5. Each question has four alternative answer (A, B, C, D) of which only one is correct. For each question, darken only one bubble (A or B or C or D), whichever you think is the correct answer, on the Answer Sheet with **Black Ball Point/Black Gel Pen**. **There shall be no negative marking for wrong answers.**
6. If you do not want to answer a question, leave all the bubbles corresponding to that question blank in the Answer Sheet. No marks will be deducted in such cases.
7. Darken the bubbles in the OMR Answer Sheet according to the Serial No. of the questions given in the Question Booklet.
8. If you want to change an already marked answer, erase the shade in the darkened bubble completely.
9. For rough work only the blank sheet at the end of the Question Booklet be used.
10. The Answer Sheet is designed for computer evaluation. Therefore, if you do not follow the instructions given on the Answer Sheet, it may make evaluation by the computer difficult. **Any resultant loss to the candidate on the above account, i.e. not following the instructions completely, shall be of the candidate only.**
11. After the test, hand over the Question Booklet and the Answer Sheet to the Assistant Superintendent on duty.
12. In no case the Answer Sheet, the Question Booklet, or its part or any material copied/ noted from this Booklet is to be taken out of the examination hall. Any candidate found doing so would be expelled from the examination.
13. A candidate who creates disturbance of any kind or changes his/her seat or is found in possession of any paper possibly of any assistance or found giving or receiving assistance or found using any other unfair means during the examination will be expelled from the examination by the Centre Superintendent/Observer whose decision shall be final.
14. **Telecommunication equipment such as pager, cellular phone, wireless, scanner, etc., is not permitted inside the examination hall. Use of calculators is not allowed.**

- Which of the following is a non-organ-specific (systemic) autoimmune disease?
  - Myasthenia gravis.
  - Insulin-dependent diabetes mellitus
  - Hashimoto's thyroiditis
  - Systemic lupus erythematosus (SLE)
- Recombination of V, D and J Ig gene segments:
  - Is effected by recombinase enzymes.
  - Involves heptamer-spacer-heptamer flanking sequences
  - Only occurs in mature B-cells
  - Only occurs in light chains
- In the indirect ELISA test the enzyme-linked antibody will attach to:
  - Patient antigen
  - Variable region of the patient antibody
  - Constant region of the patient antibody
  - Wall of the microtiter well
- Hormone that acts by binding to intracellular receptor is
  - Adrenocorticotrophic hormone
  - Thyroxine
  - Follicle stimulating hormone
  - Glucagon
- Rifampicin inhibits
  - Unwinding of DNA
  - Initiation of replication
  - Initiation of translation
  - Initiation of transcription
- Selenium is a constituent of the enzyme:
  - Glutathione peroxidase
  - Homogentisate oxidase
  - Tyrosine hydroxylase
  - Phenylalanine hydroxylase
- An intermediate in the  $\text{Na}^+\text{-K}^+$  pump transport cycle is:
  - A phosphorylated Asp residue, E1-P.
  - An enzyme-adenylate complex, E-AMP.
  - An enzyme-PPi complex, E-PPi.
  - A protonated Glu residue, E-COOH
- Diphtheria toxin inhibits
  - Prokaryotic EF-1
  - Prokaryotic EF-2
  - Eukaryotic EF-1
  - Eukaryotic EF-2
- Which of the following amino acids would be MOST prone to a reaction with an irreversible inhibitor?
  - Phenylalanine
  - Lysine
  - Threonine
  - Histidine

10. Zinc finger motif is formed in some proteins by binding of zinc to
- A) Two cysteine residues
  - B) Two histidine residues
  - C) Two arginine residues
  - D) Two cysteine and two histidine residues or two pairs of two cysteine residues each
11. Anion gap in plasma is because
- A) Of differential distribution of ions across cell membranes
  - B) Cations outnumber anions in plasma
  - C) Anions outnumber cations in plasma
  - D) Of unmeasured anions in plasma
12. Cellulose is a polymer of
- A) -Glu  $\alpha$  1, 3 Glu-
  - B) -Glu  $\beta$  1, 4Glu-
  - C) -Glu  $\alpha$  1, 4 Gal-
  - D) -Glu  $\beta$  1, 3 Gal-
13. A polypeptide 10 amino acids long is split into various smaller fragments, and the amino acid sequences of some of the fragments are determined. The identified fragments include: ala-gly-ser-gln, lys-trp-arg-pro, gln-his-lys, asp-ala-gly. What is the primary sequence of the polypeptide ?
- A) ala-gly-ser-gln-lys-trp-arg-pro-gln-his
  - B) asp-ala-gly-ser-gln-his-lys-trp-arg-pro
  - C) ala-gly-ser-gln-his-lys-trp-arg-pro-asp
  - D) lys-trp-arg-pro-gln-his-lys-asp-ala-gly
14. Which of the following methods of regulation is not present in prokaryotes?
- A) DNA-binding proteins
  - B) Attenuation
  - C) Repressor proteins
  - D) Chromatin remodeling
15. miRNAs are involved in:
- A) Transcriptional silencing
  - B) RNA interference
  - C) Ubiquitination
  - D) Methylation
16. How would the cell cycle be affected if you removed the phosphorylation sites in the Rb protein?
- A) The cell cycle would not be affected because pRb is not phosphorylated normally.
  - B) The cell cycle would be blocked in G<sub>1</sub>
  - C) The cell cycle would be blocked in G<sub>2</sub>.
  - D) The cell cycle would be shorter

(3)

17. What properties of a protein does hydrophobic interaction chromatography exploit for purification?
- A) Charged amino acids
  - B) Hydrophobic amino acids on the protein surface
  - C) Molecular weight
  - D) Enzyme activity
18. What is the starting point for selection of a suitable Ion-exchange chromatography matrix for purification of a recombinant protein?
- A) Prediction of isoelectric point (pI) from the amino acid sequence
  - B) Test protein binding to an Ion exchange matrix at a range of pHs and salt concentrations
  - C) Test protein binding to a selection of anion and cation exchange matrices
  - D) Pass your sample through a preparative column and elute with a salt gradient
19. The following hormone is a peptide of less than 10 amino acids
- A) Insulin
  - B) Growth Hormone
  - C) Oxytocin
  - D) Parathyroid hormone
20. Ternary complex is not formed in:
- A) Random Bi B
  - B) Ordered Bi Bi
  - C) Theorell-Chance Bi Bi
  - D) Ping Pong Bi Bi
21. Which of the following agents act as irreversible inhibitors?
- A) Sulphonamides
  - B) Penicillins
  - C) Statins
  - D) Protease inhibitors
22. Buffer systems are effective when the pH values are within \_\_\_\_ pH unit(s) of the  $pK_a$  value.
- A) 1.0
  - B) 1.5
  - C) 3.0
  - D) 4.0
23. Which statement best describes the main distinction between the origin of the two classes of small regulatory RNAs: siRNA and miRNA?
- A) siRNAs originate within the cell cytoplasm; miRNAs originate from the cell genome
  - B) siRNAs originate from predominantly exogenous dsRNA; miRNAs originate from the cell genome
  - C) miRNAs are expressed whenever siRNAs are unable to appropriately degrade RNA sequences
  - D) miRNAs are processed from dsRNA viruses, siRNAs are processed from ssRNA viruses

(4)

24. The opening of axon membrane voltage-gated potassium channels is responsible for which part of the action potential?
- A) Depolarisation of the membrane
  - B) Repolarisation of the membrane
  - C) Contraction of the post synaptic muscle fibre
  - D) Signalling vesicular release of neurotransmitters
25. The immediate products of  $C_3$  and  $C_4$  photosynthesis are, respectfully:
- A) Ribulose 1,5-bisphosphate; Malic acid
  - B) Malic acid; Glucose
  - C) 3-Phosphoglycerate; Oxaloacetic acid
  - D) Glyceraldehyde 3-phosphate; Phospho-*enol*-pyruvate (PEP)
26. Which of the following proteins is not part of the apoptosome which initiates apoptosis by the intrinsic pathway?
- A) Apaf-1
  - B) Bcl-2
  - C) Procaspase-9
  - D) Cytochrome C
27. Which of the following proteins involved in peptide initiation and chain elongation is a GTPase switch?
- A) Initiation factor-2
  - B) EF-Tu
  - C) EF-G
  - D) Both EF-Tu and EF-G
28. Which of the following statements about smooth muscle contraction is correct?
- A) A  $Ca^{2+}$ -calmodulin complex activates the phosphatase that causes contraction of smooth muscle.
  - B) Unlike striated muscle, contraction of smooth muscle cells occurs when  $Ca^{2+}$  levels fall.
  - C) Phosphorylation of a myosin light chain allows actin-myosin binding in smooth muscle.
  - D) Dephosphorylation of a myosin light chain allows actin-myosin binding in smooth muscle.
29. Which of the following statements about the enzymes, glucokinase and/or hexokinase is correct?
- A) Hexokinase has a higher  $K_m$  for glucose than has glucokinase.
  - B) Glucokinase has a lower  $K_m$  for glucose than has hexokinase
  - C) Glucokinase has a high affinity for glucose
  - D) Hexokinase has a high affinity for glucose.
30. Which of the following statements about aminolevulinate synthase (ALA synthase) is correct?
- A) ALA synthase catalyses the rate-limiting reaction in haem degradation.
  - B) ALA synthase catalyses the rate-limiting reaction in haem synthesis.
  - C) ALA synthase is decreased in patients with acute intermittent porphyria.
  - D) ALA synthase synthesis decreases in individuals treated with drugs such as barbiturates.

(5)

31. Why does the ribosome stall on region 1 during attenuation?
- A) Translation of this region requires tRNA<sup>trp</sup>.
  - B) High levels of tryptophan interfere with ribosome function.
  - C) Low levels of tryptophan lead to intrinsic termination.
  - D) Binding of the repressor protein prevents further translation.
32. Lactose utilization by *E. coli* requires the gene \_\_\_\_\_ which transports lactose into the cell.
- A) lacZ
  - B) lacy
  - C) lacA
  - D) lacI
33. When glucose interferes with the inductive effects of lactose on the lactose operon, this is called \_\_\_\_\_.
- A) Co-repression
  - B) Attenuation
  - C) Anti-termination
  - D) Diauxic
34. All of the following translocate to the nucleus and induce elevated levels of transcription except \_\_\_\_\_.
- A) Cell-surface cytokine receptors
  - B) Phosphorylated MAP kinase
  - C) Steroid receptor proteins bound to steroid hormones
  - D) Phosphorylated STATs
35. Prothrombin time is prolonged by administering
- A) Vitamin K
  - B) Dicoumarol
  - C) Calcium
  - D) Prothrombin
36. Tryptophan is sometimes used to promote sleep. This is probable, because it is a precursor of:
- A) Serotonin
  - B) Melatonin
  - C) Niacin
  - D) Tryptamine
37. Vitamin C is essential in the synthesis of a hydroxyproline residue found in:
- A) Collagen
  - B) Keratin
  - C) Ferritin
  - D) Thrombin
38. The main active form of vitamin D in the body is:
- A) 1,25(OH)<sub>2</sub> vitamin D.
  - B) 24,25(OH)<sub>2</sub> vitamin D.
  - C) 7-dehydrocholesterol
  - D) Calcitonin
39. Which of the following reactions is required for proofreading (i.e. correcting replication errors) during DNA replication by DNA polymerase III?
- A) 3' - 5' exonuclease activity
  - B) 5' - 3' exonuclease activity
  - C) 3' - 5' endonuclease activity
  - D) 5' - 3' endonuclease activity





(7)

47. Pompe's disease is due to the deficiency of
- A) Glucose-6-phosphatase
  - B) Acid maltase
  - C) Liver phosphorylase
  - D) Muscle phosphorylase
48. Site directed mutagenesis is a method used to:
- A) Modify amino acids with chemical reagents
  - B) Directly alter the amino acid sequence of a protein
  - C) Mutate organisms through ionization
  - D) Change the sequence of DNA
49. A PCR reaction that continues for 30 cycles will produce approximately how many PCR products from a single template DNA molecule?
- A) 64
  - B) 128
  - C) 128,000
  - D) Approximately 1 billion
50. Cystic fibrosis results from defective ion channels for
- A)  $\text{Na}^+$
  - B)  $\text{Cl}^-$
  - C)  $\text{Ca}^{++}$
  - D)  $\text{H}^+$

x-x-x

Question Booklet Series : **A** Question Booklet Sr. No. **036017**

## Ph.D. Entrance Test – 2014

Subject : **Bio-Physics**

Paper-I

**Important:** Please consult your Admit Card/Roll No. slip before filling your Roll Number on the Test Booklet and Answer Sheet.

Roll No. *In Figure* *In Words*

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O.M.R. Answer Sheet Serial No.

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Signature of the Candidate \_\_\_\_\_

**Time: 60 minutes**

**Number of Questions: 50**

**Maximum Marks : 50**

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1. Gases such as oxygen and carbon dioxide cross the plasma membrane by:
  - A) secondary active transport
  - B) passive diffusion through the lipid bilayer
  - C) specific gas transport proteins
  - D) primary active transport
2. The sodium pump
  - A) Exchanges extracellular  $\text{Na}^+$  for intracellular  $\text{K}^+$
  - B) Is important for maintaining a constant cell volume
  - C) Can only be inhibited by metabolic poisons
  - D) Is an ion channel
3. Which of the following statements regarding exocytosis is correct?
  - A) Is always employed by cells for secretion
  - B) Is used to deliver material into the extracellular space
  - C) Takes up large molecules from the extracellular space
  - D) Allows the retrieval of elements of the plasma membrane
4. The resting membrane potential is mainly determined by:
  - A) the  $\text{Cl}^-$  gradient
  - B) the  $\text{Ca}^{2+}$  gradient
  - C) the  $\text{Na}^+$  gradient
  - D) the  $\text{K}^+$  gradient
5. PCR is used for
  - A) reverse transcribing RNA into DNA
  - B) digesting proteins
  - C) digesting DNA
  - D) amplifying DNA
6. Cloning vectors
  - A) are always plasmids
  - B) contain an origin of replication
  - C) have an average size of 20 kilobase pairs (kb)
  - D) are always circular molecules
7. DNA
  - A) is a positively charged molecule at neutral pH
  - B) contains phosphate
  - C) is always double-stranded
  - D) has a diameter of around  $2 \mu\text{m}$

8. The discovery of green fluorescent protein (GFP) has greatly facilitated living cell experiments because
- A) GRP is green
  - B) GFP requires a jellyfish-specific cofactor
  - C) GFP sequences may be readily fused to those of other proteins
  - D) wild-type GFP folding is adapted to normal sea water temperatures.
9. The products of exactly which genes assess cell damage and coordinate the repair process?
- A) oncogenes
  - B) tumor-suppressor genes
  - C) proto-oncogenes
  - D) activator genes
10. Why is a mutation in the p53 gene so important?
- A) cells grow in size and multiple nuclei develop
  - B) cell division is uncontrolled
  - C) the ras gene is inhibited
  - D) cell division is stopped
11. A  $^1\text{H}$  NMR spectrum of compound C contains a singlet, a triplet and a quartet. Which of the following compounds might C be?
- A)  $\text{CH}_3\text{CCl}_2\text{CH}_2\text{CH}_3$
  - B)  $\text{CH}_3\text{CH}_2\text{CH}_2\text{CHCl}_2$
  - C)  $\text{CH}_3\text{CH}_2\text{CHClCHCl}_2$
  - D)  $\text{CH}_3\text{CHClCHClCH}_3$
12. When an external magnetic field is applied, what happens to the protons in a sample?
- A) All protons align with the field.
  - B) All protons align opposite to the field.
  - C) Some protons align with the field and some align opposite to it.
  - D) All protons assume a random orientation
13. The wavenumber of a transition is  $2000\text{ cm}^{-1}$ . In what part of the electromagnetic spectrum does this come?
- A) Infrared.
  - B) Radiowave.
  - C) Microwave.
  - D) Ultraviolet-visible.
14. Which statement is correct?
- A) Wavelength is directly proportional to energy.
  - B) Wavenumber is directly proportional to wavelength.
  - C) Wavelength is directly proportional to frequency.
  - D) Wavenumber is directly proportional to energy.

15. Which of the following is not a use for mass spectrometry?
- A) calculating the isotopic abundance in elements
  - B) investigating the elemental composition of planets
  - C) confirming the presence of O-H and C=O in organic compounds
  - D) calculating the molecular mass of organic compounds.
16. Homologous genes:
- A) Would be expected to have very similar sequences in related organisms.
  - B) Would be expected to be more similar in distantly related organisms rather than in closely related organisms.
  - C) May have become similar to each other by random mutation.
  - D) have same functions
17. Which of the following is not an example of ionizing radiation?
- A) alpha
  - B) beta
  - C) gamma
  - D) microwave
18. Which of the following is not a unit radiation dose or exposure?
- A) rad
  - B) roentgen
  - C) curie
  - D) roentgen
19. A substance can only be accumulated against its electrochemical gradient by:
- A) facilitated diffusion
  - B) Passage through ion channels
  - C) Diffusion through a uniport
  - D) Active transport
20. All are sequence alignment tools except
- A) Rasmol
  - B) BLAST
  - C) FASTA
  - D) Clustal W
21. The two most common processes that lead to production of multiple functional proteins from the same DNA sequence are:
- A) RNA editing and alternative splicing.
  - B) Protein folding and posttranslational covalent modifications.
  - C) Alternative splicing and posttranslational covalent modifications.
  - D) Posttranslational covalent modification and transcriptional regulation.

22. Restriction fragment length polymorphisms (RFLPs)
- A) Are used to determine the position of restriction sites in a genome
  - B) Are used in physical mapping
  - C) Are used in genetic mapping
  - D) Usually occur as multiple (more than 2) alleles in a genome
23.  $\beta$ -sheets are stabilized by
- A) hydrophobic bonds
  - B) ionic bonds
  - C) hydrogen bonds
  - D) covalent bonds
24. cGMP phosphodiesterase catalyzes the conversion of
- A) cAMP to cGMP
  - B) cGMP to 5'-GMP
  - C) GTP to cGMP
  - D) cGMP to GDP
25. All of the following properties about nitric oxide are true EXCEPT:
- A) is a gas
  - B) is synthesized from O<sub>2</sub> and arginine
  - C) has a half-life of 2-3 minutes
  - D) activates guanylyl cyclase
26. Calmodulin
- A) is an ubiquitous protein in eukaryotic cells
  - B) binds Ca<sup>2+</sup>
  - C) is a membrane bound protein
  - D) a and b
27. What is the normal role of telomerase?
- A) repairs broken strands of chromosomes
  - B) builds telomeres in embryonic cells
  - C) builds new DNA in cancerous cells
  - D) builds and repairs proto-oncogenes
28. What is cancer of the bone marrow stem cells that produce white blood cells called?
- A) carcinoma
  - B) leukemia
  - C) sarcoma
  - D) lymphoma
29. Which list below gives only spin active nuclei?
- A) <sup>2</sup>H, <sup>12</sup>C, <sup>19</sup>F
  - B) <sup>1</sup>H, <sup>2</sup>H, <sup>12</sup>C
  - C) <sup>1</sup>H, <sup>13</sup>C, <sup>19</sup>F
  - D) <sup>1</sup>H, <sup>12</sup>C, <sup>19</sup>F

30. Which of the following statements is FALSE about the NMR experiment.
- A) The energy required to flip the spin of a proton is in the infrared region of the electromagnetic spectrum.
  - B) The energy difference between the two spin states depends on the strength of the magnetic field.
  - C) When energy absorption occurs, the nuclei are said to be in resonance with the electromagnetic radiation.
  - D) When a proton is aligned with the magnetic field, its energy is lower than when it is aligned against the magnetic field.
31. According to the Beer-Lambert Law, on which of the following does absorbance not depend?
- A) Distance that the light has travelled through the sample.
  - B) Colour of the solution.
  - C) Solution concentration.
  - D) Extinction coefficient of the sample.
32. Which of the following statements is correct?
- A) Ultraviolet radiation has a longer wavelength than infrared radiation.
  - B) Infrared radiation has a lower wavenumber than visible light.
  - C) Microwave radiation possesses more energy than infrared radiation.
  - D) Infrared radiation has a shorter wavelength than visible light.
33. Which one of the following statements about ionisation in a mass spectrometer is incorrect?
- A) gaseous atoms are ionised by bombarding them with high energy electrons
  - B) atoms are ionised so they can be accelerated
  - C) atoms are ionised so they can be deflected
  - D) it doesn't matter how much energy you use to ionise the atoms
34. In a NMR spectrum, in the triplet, the relative peak areas are in the ratio...
- A) 1:1:1
  - B) 1:2:1
  - C) 1:3:1
  - D) 1:4:1
35. C-14 is radioactive. The activity and daughter products are
- A)  $\alpha$  active and Be-10
  - B)  $\beta$  active and B-14
  - C)  $\gamma$  active and C-14
  - D)  $\beta$  active and N-14



36. The protein component of Rhodopsin molecule is
- A) 11-cis retinal
  - B) 11-trans retinal
  - C) Retinene
  - D) Scotopsin
37. In gene therapy, DNA is inserted into a cell to compensate for
- A) The absence of plasmids
  - B) Mutant alleles
  - C) Holes in the DNA made by viruses
  - D) They lack copy of DNA
38. Which of the following is not secreted directly into the blood stream
- A) Steroid hormone
  - B) Neurotransmitter
  - C) Peptide hormone
  - D) Neurohormone
39. To determine the molecular weight of unknown protein, the most appropriate technique would be
- A)  $^1\text{H}$  NMR spectroscopy
  - B)  $^{13}\text{C}$  NMR spectroscopy
  - C) Mass spectroscopy
  - D) IR spectroscopy
40. Membrane fluidity is controlled by
- A) Fatty acid composition
  - B) Fatty acid composition and cholesterol content
  - C) Cholesterol content
  - D) Glycerol composition
41. A Ramachandran plot
- A) Represents the sterically allowed conformations of a polypeptide backbone
  - B) Gives the frequency of occurrence of amino acids
  - C) Predicts the  $\alpha$  helical structure from amino acid sequence
  - D) Shows the X ray diffraction pattern from amino acid sequence
42. SDS-PAGE and isoelectrical focusing method for separation of proteins have which of the following characteristics in common
- A) A separate native protein
  - B) Make use of an electric field
  - C) Separate proteins according to their mass
  - D) Require a pH gradient

43. Which of the following is the sensitive indicator of proteins
- A) Circular dichorism
  - B) Gel chromatography
  - C) Gel electrophoresis
  - D) Affinity chromatography
44. Telocentric chromosomes differ from acrocentric chromosomes in having
- A) Terminal centromere as compared to subterminal centromere in the latter
  - B) Terminal centromere as compared to medianly located centromere in the latter
  - C) Subterminal centromere as compared to medianly located centromere in the latter
  - D) Subterminal centromere as compared to submedian located centromere in the latter
45. Loops of lampbrush chromosome possess
- A) DNA, RNA and proteins
  - B) DNA and RNA
  - C) DNA and proteins
  - D) DNA
46. Lipid molecules of plasma membrane are arranged
- A) Alternately
  - B) In series
  - C) Parallel
  - D) Scattered
47. Ubiquinone is
- A) Protein co-enzyme
  - B) Non-protein co-enzyme
  - C) Activator
  - D) Protein co-activator
48. DNA/chromosome replication takes place during
- A) G1-phase
  - B) G2 phase
  - C) S-phase
  - D) Prophase
49. The active site of an enzyme is formed by a few of the enzyme's
- A) R groups of the amino acids
  - B) Amino groups of the amino acids
  - C) Carboxyl groups of the amino acids
  - D) Exposed sulfur bonds
50. Which of the following is the molecular scissors in genetic engineering
- A) Exonucleases
  - B) Primase
  - C) Endonucleases
  - D) DNA ligase

Question Booklet Series : **A** Question Booklet Sr. No. 037117

## Ph.D. Entrance Test – 2014

Subject : Chemistry

Paper-I

**Important:** Please consult your Admit Card/Roll No. slip before filling your Roll Number on the Test Booklet and Answer Sheet.

Roll No.

*In Figure*

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*In Words*

O.M.R. Answer Sheet Serial No.

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*Signature of the Candidate* \_\_\_\_\_

**Time: 60 minutes**

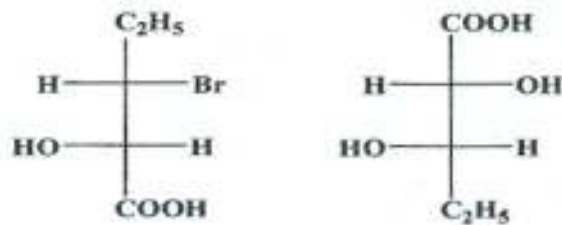
**Number of Questions: 50**

**Maximum Marks : 50**

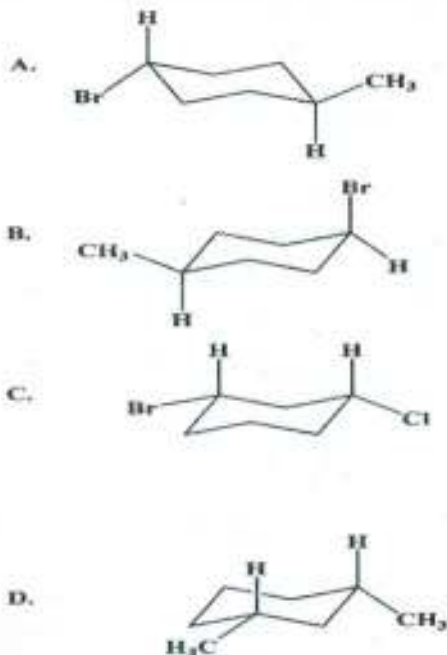
### INSTRUCTIONS

1. Write your roll No. on the Question Booklet and also on the OMR Answer Sheet in the space provided and nowhere else.
2. Enter the Code No. of Question Booklet on the OMR answer Sheet. Darken the corresponding bubbles with **Black Ball Point/Black Gel Pen**.
3. Do not make any identification mark on the Answer Sheet or Question Booklet.
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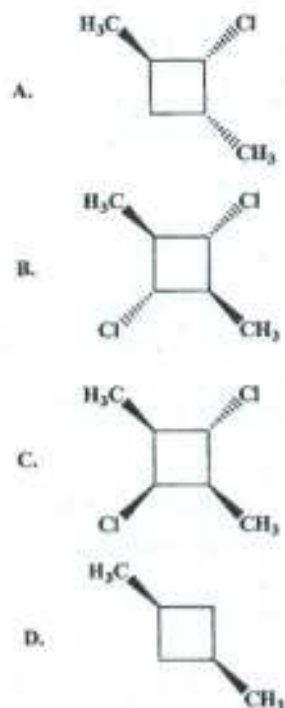
1. The following pair is described as



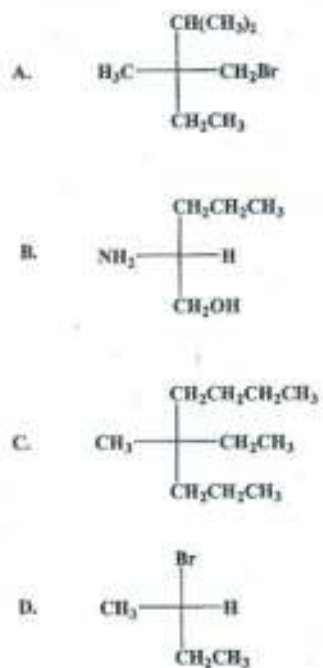
- A) Enantiomers                      B) Epimers  
 C) Identical Isomers                D) Constitutional Isomers
2. Cyclohexane protons show three vicinal coupling constants ( $J_{vic}$ ) in the PMR spectrum. Indicate whether  $J_{(ax-ax)}$  is
- A) equal to  $J_{ax-eq}$                       B) greater than  $J_{eq-eq}$   
 C) less than  $J_{eq-eq}$                       D) less than  $J_{ax-eq}$
3. An E-olefin which is symmetrically disubstituted
- A) will always be trans                B) will always be cis  
 C) can never be cis                      D) can be cis or trans
4. Which of the following structures represents a trans Cyclohexane?



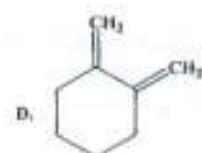
5. Which of the following compounds is chiral?



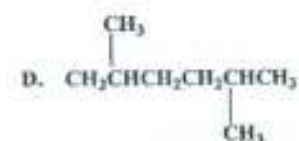
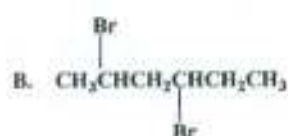
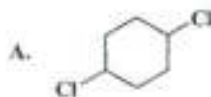
6. Which of the following structures has 'S' configuration at the Chiral centre?



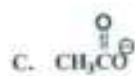
7. Which of the following conjugated dienes will not react with a dienophile?



8. Which of the following compounds has a meso stereoisomer?



9. Which of the following species is a weakest nucleophile?



10. Which of the following is most intense peak in the Mass Spectrum of 2-propanone?



11. Which of the following phenomenon is responsible for the stability of ethyl carbocation?

A) Resonance

B) Hyper-conjugation

C) Hybridization

D) Planarity

12. Which of the following options of reagents will convert I to II



I



II

A) Aq. NaOH

B) Molecular  $\text{O}_2$

C) m-chloroperbenzoic acid

D) trifluoromethane sulphonic acid

13. PMR spectrum of  $\text{CH}_3\text{C}(\text{CH}_3)_2\text{C}(\text{CH}_3)_2\text{CH}_3$  will show number of resonances equal to

A) 1

B) 2

C) 3

D) 6

14. Which of the following rearrangements is responsible for conversion of phenyl acetate to o-hydroxy acetophenone?

A) Claisen rearrangement

B) Hoffmann rearrangement

C) Fries rearrangement

D) Cope rearrangement

15.  $\text{C}_6\text{H}_{11}\text{CONH}_2$  on reaction with NaOBr will produce

A)  $\text{C}_6\text{H}_{11}\text{NH}_2$

B)  $\text{C}_6\text{H}_{11}\text{CH}_2\text{NH}_2$

C)  $\text{C}_6\text{H}_{11}\text{CO C}_6\text{H}_{11}$

D)  $\text{C}_6\text{H}_{11} \cdot \text{C}_6\text{H}_{11}$

16. Which of the following pair of reactants can produce anisole?

A)  $\text{C}_6\text{H}_5\text{OH}$  and  $\text{CH}_3\text{OH}$

B)  $\text{C}_6\text{H}_5\text{Br}$  and  $\text{CH}_3\text{Br}$

C)  $\text{C}_6\text{H}_5\text{O}^-$  and  $\text{CH}_3\text{I}$

D)  $\text{CH}_3\text{O}^-$  and  $\text{C}_6\text{H}_5\text{Br}$

17. Diels-Alder reaction can be classified as

A) Electrocyclic reaction

B) Cycloaddition reaction

C) Sigmatropic rearrangement

D) Ring expansion reaction





28. The coordination number and geometry of cerium in  $[\text{Ce}(\text{NO}_3)_6]^{2-}$  are respectively
- A) 6 and octahedron                      B) 6 and pentagonal bipyramidal  
C) 8 and cubic                              D) 12 and icosahedron
29. Which of the following interhalogen compound is not known?
- A)  $\text{IF}_5$                                       B)  $\text{ClF}_3$   
C)  $\text{FCl}_3$                                       D)  $\text{BrF}_3$
30. The specie  $[\text{Co}(\text{CO})_3]$  is isolobal with
- A)  $\text{CH}_3$                                       B)  $\text{CH}_2$   
C)  $\text{CH}$                                         D)  $\text{CH}_4$
31. Which species has the maximum number of lone pair of electrons on the central atom?
- A)  $[\text{ClO}_3]^-$                                 B)  $\text{XeF}_4$   
C)  $\text{SF}_4$                                       D)  $[\text{I}_3]^-$
32. Which one of the following molecules/ion has a planar structure?
- A)  $\text{BF}_4^-$                                       B)  $\text{XeF}_4$   
C)  $\text{SF}_4$                                       D)  $\text{CCl}_4$
33. Which of the following compound cannot be oxidized by  $\text{O}_3$ ?
- A)  $\text{KI}$                                         B)  $\text{FeSO}_4$   
C)  $\text{KMnO}_4$                                 D)  $\text{K}_2\text{MnO}_4$
34. How many EDTA (ethylenediaminetetraacetic acid) molecules are required to make an octahedral complex with a  $\text{Ca}^{2+}$  ion?
- A) 1    B) 2  
C) 3    D) 4





Question Booklet Series : **A** Question Booklet Sr. No. **038027**

**Ph.D. Entrance Test – 2014**  
**Subject : Forensic Science & Criminology**  
**Paper-I**

**Important:** Please consult your Admit Card/Roll No. slip before filling your Roll Number on the Test Booklet and Answer Sheet.

Roll No. *In Figure* *In Words*

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O.M.R. Answer Sheet Serial No. 

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Signature of the Candidate \_\_\_\_\_

**Time: 60 minutes**      **Number of Questions: 50**      **Maximum Marks : 50**

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1. Which factor influence the final appearance of blood stain which is formed when blood droplet strikes a surface  
(A) Impact Volume  
(B) Target surface absorbency  
(C) Target surface texture  
(D) Bloodstain pattern
2. The post-mortem condition of the hypostases is also known as  
(A) Liver mortis  
(B) Cadaveric spasm  
(C) Putrification  
(D) Rigor mortis
3. Calculate the approximate diameter of the crater which is expected to be produced by a bomb consisting of 210 kg of explosive.  
Given  $W \approx d^3/16$  where  $W$  = weight of charge (kg) and  $d$  = diameter of crater (m)  
(A) 20m  
(B) 15m  
(C) 16m  
(D) 22m
4. A musket is  
(A) Carbine firearm  
(B) Shortened version of rifle  
(C) Smooth bored military shoulder firearm  
(D) Another form of LMG
5. The severity of wound, as determined by the size of temporary cavity is related to  
(A) Amount of K.E. lost in the tissue  
(B) Total energy possessed by the bullet  
(C) The penetration parameter of the bullet  
(D) Level of perforation in the tissue

6. Which component of R blood cells is responsible for the peroxidase like activity of blood
- (A) Hematoperoxidase
  - (B) Hemoglobin
  - (C) Globulinperoxidase
  - (D) Globulinase
7. In the SGM<sup>+</sup>, most of the loci are present in regions of 'junk' DNA or in the intron region of genes. The outcome is
- (A) The genotype at these loci not indicating anything about the physical attributes of the person
  - (B) The genotype having no health implication for carrier
  - (C) Alleles being selectively neutral
  - (D) Phenotype not being influenced by genotype
8. The Dequenois – Levine test is used to screen which of the following drug
- (A) Heroin
  - (B) Cocaine
  - (C) Caffeine
  - (D) Marijuana
9. Primary explosives undergo a very rapid
- (A) Burning to detonation
  - (B) Explosion
  - (C) Burning to deflagration
  - (D) Deflagration to detonation
10. The major problem faced during STA (Systematic Toxicological Analysis) is
- (A) Requirement of integrated instrument
  - (B) Complication due to immunoassays compatibility
  - (C) Scarcity of sample
  - (D) Cross reactivity of some samples
11. In case of suspicious deaths, 'syncope' stands for
- (A) Failure of nervous system
  - (B) Failure of circulatory system
  - (C) Failure of respiratory system
  - (D) Failure of lymphatic system
12. On an incised wound, the continuous layer of epidermal cell covers the surface, overlying this is a crust or scab of dried clot. This happens in
- (A) 24 hrs

- (B) 4 hrs
  - (C) 36 hrs
  - (D) 10 hrs
13. P300 specifies
- (A) The electronic temperature detector in GC
  - (B) The electronic signal which appears on recognition
  - (C) Coding for perishable evidence
  - (D) Backlit area in photon coding of documents
14. ISO/IEC 17025 provides
- (A) Requirement for the competence of testing and calibration laboratories
  - (B) Terms and conditions for laboratory accreditation
  - (C) Requirements in compliance with manual for setting laboratory
  - (D) Standards for the laboratory testing
15. Blunt trauma refers to
- (A) Injuries caused by sharp objects
  - (B) Fracture and external bruising
  - (C) Condition of shock state due to injury
  - (D) Multiple fracture due to hitting by blunt object
16. How does double-beam scanning spectrometer works
- (A) It gives double beam and signal is intensified
  - (B) It measures simultaneous transmittance of sample and solvent
  - (C) Double beam covers broader area while measuring absorbance
  - (D) Two intensities due to double beam are not compared and focusing of beam is done
17. Which of the following is not a fingerprint pattern
- (A) Whorl
  - (B) Composite
  - (C) Central packed loop
  - (D) Plain arch
18. LSD was first synthesized from
- (A) Lysergsaure
  - (B) Ergotamine
  - (C) Ergoline
  - (D) Diethylamide
19. DNA fingerprinting was first used to successfully identify a murder suspect in

- (A) 1980
- (B) 1985
- (C) 1988
- (D) 1982

20. If a researcher conducting an experiment on testing a hypothesis, doubles its sample size, which of the following would increase?
- (A) The power of the hypothesis test
  - (B) The effective size of the hypothesis test
  - (C) The probability of making a type II error
  - (D) The probability of getting alternative hypothesis
21. Bruising of the muscles of neck and larynx with fracture of thyroid cartilage and hyoid bone is seen in death due to
- (A) Hanging
  - (B) Throttling
  - (C) Traumatic asphyxia
  - (D) Ligature strangulation
22. The first Fingerprint bureau was established in
- (A) England
  - (B) United States of America
  - (C) India
  - (D) France
23. There are different parameters to find the time of death. One is Rigor mortis - 'stiffness of death' and another is Livor mortis or lividity. This term refers to
- (A) Degree of digestion of stomach content
  - (B) Relaxation of muscles subsequent to RM
  - (C) Gravitational pooling of blood
  - (D) Tightening of muscle of body
24. Refractive index of glass is the function of
- (A) Material and composition ratio
  - (B) Thermal history and composition ratio
  - (C) Type of material and thermal history
  - (D) Annealing temperature and the ratio of  $\text{SiO}_2$  with  $\text{CaCO}_3$
25. The major constituent of India ink is
- (A) Iron
  - (B) Carbon



- (C) Tundo dye  
(D) Water
26. 'Spurious Signature' is a very interesting phenomenon and is encountered when  
(A) Transmitted light technique is used  
(B) Slight modification with much efforts is done  
(C) Simulation is carried with skill  
(D) Unfamiliar characters are introduced
27. In hypothesis testing, which of the following statement is always true  
(A) The P-value is greater than the significance level  
(B) The P-value is test statistic  
(C) The P-value is computed from the significance level  
(D) The P-value is a probability
28. The concept of designer drugs gained importance in 1980s. It tells about  
(A) Psychoactive substances not under legal control  
(B) New drug molecules with altered properties  
(C) Herbal drugs with hallucinogenic properties  
(D) Drug analogs
29. In case of segmental analysis of hair, to evaluate the presence of drugs of abuse, the part of hair taken for investigation is  
(A) Root segment  
(B) Distal and proximal segment  
(C) Middle segment  
(D) Multiple segments
30. Drugs for which no 'immunoassays' are available can be screened by  
(A) TLC  
(B) CZE  
(C) Microtiter plates  
(D) Lyophilization
31. Restoration of ink become easy and successful when it contains  
(A) Iron salts  
(B) Carbon residue  
(C) Synthetic dyes  
(D) Organic solvents

32. An explosive charge with high VOD and high detonation pressure, designed for initiation and enhancement of explosive effect
- (A) Detonator
  - (B) Blasting cap
  - (C) Booster
  - (D) Primary explosive
33. Non-verbal methods of lie detection does not include
- (A) Brain imaging
  - (B) Facial analysis
  - (C) Eye tracking
  - (D) Narco analysis
34. Pharmacopoeia of marine derived biotoxin includes 'domoic acid', which is responsible for
- (A) Paralytic shellfish poisoning
  - (B) Ciguatera shellfish poisoning
  - (C) Diarrhetic shellfish poisoning
  - (D) Amnesic shellfish poisoning
35. The major effect of destruction by an explosive compound is the result of
- (A) Positive blast pressure
  - (B) Negative blast pressure
  - (C) Fragmentation effect
  - (D) Ancillary effect
36. What is the cause of hooch tragedies?
- (A) Ethyl alcohol
  - (B) Ethyl acetate
  - (C) Methanol
  - (D) Acetic acid
37. Restoration of any erase number from the steel surface can be done using
- (A) Fry's reagent
  - (B) DPA reagent
  - (C) Etching reagent
  - (D) Villela's reagent
38. Nitrogen mustard is a type of
- (A) Drug of abuse
  - (B) High energy explosive

- (C) Weapon of mass destruction  
(D) Plant poison
39. The tool marks from stone, concrete and wood can be lifted by using  
(A) 33% HCl solution  
(B) Cellulose acetate dissolved in acetone  
(C) Husk meal dissolved in ethanol  
(D) 43% HCl in ethyl acetate
40. Forensic science starts its investigation from 'objective tests'. This test does not include  
(A) Documentation of test  
(B) Surveying of laboratories  
(C) Validation of test  
(D) Training and authorization of staff
41. How NMR signal will appear for  $\text{CH}_4$ ,  $\text{C}_2\text{H}_6$  and  $\text{C}_6\text{H}_6$   
(A) Spin coupling  
(B) Triplet  
(C) Singlet  
(D) Quartet
42. 3-indoxy sulphuric acid in urine can be detected by  
(A) ELISA  
(B) RIA  
(C) IMS  
(D) TLC
43. The fundamental vibrational frequency of HCl is  $2,890 \text{ cm}^{-1}$ . Calculate the approximate force constant of this molecule. Atomic mass of  $^1\text{H} = 1.673 \times 10^{-27} \text{ kg}$  and  $^{35}\text{Cl} = 58.06 \times 10^{-27} \text{ kg}$   
(A)  $488 \text{ Nm}^{-1}$   
(B)  $484 \text{ Nm}^{-1}$   
(C)  $486 \text{ Nm}^{-1}$   
(D)  $480 \text{ Nm}^{-1}$
44. Which of the following is a derivative of isoquinoline group?  
(A) Papaverine  
(B) Thebaine  
(C) Codeine  
(D) Morphine

45. Mirror test is the test for
- (A) Circulation
  - (B) Drowning
  - (C) Poisoning
  - (D) Respiration
46. Which of these molecules is IR-inactive but Raman-active
- (A)  $N_2$
  - (B) HCl
  - (C)  $NO_2$
  - (D) Proteins
47. What antidote of oxalic acid is available readily at home
- (A) Dust
  - (B) Cowdung
  - (C) Wall scrap
  - (D) Charcoal
48. A monochromatic radiation is incident on a solution of 0.05 molar concentration of an absorbing substance. The intensity of radiations is reduced to  $\frac{1}{4}$ <sup>th</sup> of initial value after passing through 10 cm length of the solution. What would be the approximate value of extinction coefficient
- (A)  $1.2 \text{ dm}^3 \text{ mol}^{-1} \text{ cm}^{-1}$
  - (B)  $2.4 \text{ dm}^3 \text{ mol}^{-1} \text{ cm}^{-1}$
  - (C)  $3.6 \text{ dm}^3 \text{ mol}^{-1} \text{ cm}^{-1}$
  - (D)  $4.8 \text{ dm}^3 \text{ mol}^{-1} \text{ cm}^{-1}$
49. The result of phadebas press test are interpreted as the presence of amylase indicated through
- (A) Red color
  - (B) Blue color
  - (C) Yellow color
  - (D) Pink color
50. The amendment of Rule-702 pertains to
- (A) Testimony by experts
  - (B) Empirical testing
  - (C) Testimony by expert witness
  - (D) Testimony by scientific experts

## Ph.D. Entrance Test – 2014

### Subject : Human Genome Studies & Research

#### Paper-I

**Important:** Please consult your Admit Card/Roll No. slip before filling your Roll Number on the Test Booklet and Answer Sheet.

Roll No.

*In Figure*

*In Words*

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O.M.R. Answer Sheet Serial No.

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*Signature of the Candidate* \_\_\_\_\_

**Time: 60 minutes**

**Number of Questions: 50**

**Maximum Marks : 50**

#### INSTRUCTIONS

1. Write your roll No. on the Question Booklet and also on the OMR Answer Sheet in the space provided and nowhere else.
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13. A candidate who creates disturbance of any kind or changes his/her seat or is found in possession of any paper possibly of any assistance or found giving or receiving assistance or found using any other unfair means during the examination will be expelled from the examination by the Centre Superintendent/Observer whose decision shall be final.
14. **Telecommunication equipment such as pager, cellular phone, wireless, scanner, etc., is not permitted inside the examination hall. Use of calculators is not allowed.**

1. In mammalian cells which of the following can transport organic molecules
 

A) P-type transporters	B) F-type transporters
C) ABC transporters	D) E1-E2 type transporters
2. Commensal microbiota provides defence against microorganism invading through
 

A) Intestine	B) Skin
C) Lungs	D) Gut
3. Which of the following phenomenon can cause higher frequency of recessive allele
 

A) Hetrozygote manifestation	B) Heterozygote advantage
C) Genetic drift	D) Bottleneck
4. Mutation rate in human is-
 

A) $10^{-6}$ pgpg	B) $10^{-9}$ pgpg
C) $10^{-3}$ pgpg	D) $10^{-12}$ pgpg
5. How many generations of random mating is sufficient to establish HWE in the absence of any disturbing factor
 

A) 01	B) 10
C) 02	D) 100
6. The cells which do not divide but can be induced to begin DNA synthesis & divide when given an appropriate stimulus are
 

A) Stem cells	B) Liver cells
C) Kidney cells	D) Epithelial cells
7. D type cyclins bind to cdks during
 

A) G1-S phase	B) mid- G1 phase
C) G2-M phase	D) Early G1 phase
8. 7-TM (Seven transmembrane) receptors are also referred to as
 

A) RTK receptors	B) GPC receptors
C) Ligand gated channels	D) Steroid hormone receptor
9. Glucagon stimulates
 

A) Lowering of blood sugar	B) Breakdown of glycogen
C) Breakdown of Glucose	D) Biosynthesis of Glycogen
10. Jackknifing is a method for -
 

A) Cluster analysis	B) Validation
C) Phylogeny	D) Homology analysis
11. Chronic rejection of a transplant occurs after
 

A) 02 days	B) 10 days
C) Immediate	D) Months

12. Sudden emergence of new subtype of influenza could be due to
- |                    |                          |
|--------------------|--------------------------|
| A) Antigenic drift | B) Antigenic shift       |
| C) Herd immunity   | D) Unhygienic conditions |
13. Philadelphia chromosome represents
- |                                      |
|--------------------------------------|
| A) Translocation between chr. 8 & 14 |
| B) Translocation between chr. 9 & 22 |
| C) Translocation between chr. 9 & 21 |
| D) Translocation between chr. 8 & 21 |
14. First eukaryotic genome to be completely sequenced was that of
- |                        |                          |
|------------------------|--------------------------|
| A) <i>S.cerevisiae</i> | B) <i>S. pombe</i>       |
| C) <i>C.elegans</i>    | D) <i>D.melanogaster</i> |
15. Restriction enzyme Not I cleaves at 5'-GCGGCCGC-3'. What would be the average distance between cleavage sites on digestion of double stranded DNA
- |          |          |
|----------|----------|
| A) 56 kb | B) 66 kb |
| C) 24 kb | D) 24 bp |
16. Aptamers are
- |                   |                        |
|-------------------|------------------------|
| A) Short peptides | B) Short RNA sequences |
| C) Antibodies     | D) Short PCR products  |
17. Phenocopy refers to
- |  |
|--|
| A) Genotype along with disease manifestation |
| B) Genotype without disease manifestation    |
| C) Disease manifestation without genotype    |
| D) Absence of disease and genotype           |
18. Sickel cell trait allele is a very good example of
- |                          |                        |
|--------------------------|------------------------|
| A) Positive selection    | B) Neutral selection   |
| C) Directional selection | D) Balancing selection |
19. The first fully human antibody (Humira) has been approved for the treatment of
- |                         |                         |
|-------------------------|-------------------------|
| A) Retinitis pigmentosa | B) Rheumatoid Arthritis |
| C) Cancer               | D) Immunodeficiency     |
20. Heritability refers to
- |                                    |                            |
|------------------------------------|----------------------------|
| A) total variance that is acquired | B) fixed property of trait |
| C) total variance that is genetic  | D) inheritance of trait    |
21. When signalling molecule is tethered to transmitting cell surface and is bound by receptor on the surface of responding cell, it is
- |                         |                          |
|-------------------------|--------------------------|
| A) Autocrine signalling | B) Paracrine signalling  |
| C) Synaptic signalling  | D) Juxtacrine signalling |

22. Discovery of which of the following has made the cell based DNA cloning possible
- A) type I restriction endonuclease      B) type II restriction endonuclease  
 C) type III restriction endonuclease      D) DNA Taq polymerase
23. Retrogene refers to
- A) Evolutionarily degenerated gene      B) special processed pseudogene  
 C) special nonprocessed pseudogene      D) bacterial gene
24. As part of HGP, which of the four model organisms were prioritized for sequencing
- A) *Chlamydomonas*, *S.cerevisiae*, *E.coli*, mouse  
 B) *E.coli*, mouse, *D. melanogaster*, zebrafish  
 C) *C.elegans*, *P.falciparum*, *S.pombe*, *Chlamydomonas*  
 D) *S. cerevisiae*, *E.coli*, *D.melanogaster*, mouse
25. If the probability of being blood type A is  $1/8$  and the probability of blood type O is  $1/2$ , what is the probability of being either blood type A or O?
- A)  $5/8$       B)  $1/8$   
 C)  $1/2$       D)  $1/16$
26. If two proteins have overall sequence identity of 50%, then the overall similarity will be
- A) less than 50%      B) more than 50%  
 C) cannot be more than 50%      D) can be less or more than 50%
27. When two oppositely charged groups are close to each other, the interaction is called
- A) salt bridge      B) H- bond  
 C) covalent bond      D) triple bond
28. The effective strength of hydrogen bonds will be
- A) unaffected by water molecules      B) strengthened by water molecules  
 C) weakened by water molecules      D) totally destroyed by water molecules
29. Disulfide bond is a
- A) weak bond      B) covalent bond  
 C) non-covalent bond      D) a special bond
30. Which of the following is not a unit of structure found in proteins?
- A)  $\beta$  sheets      B)  $\alpha$  helices  
 C) loop regions      D)  $\gamma$  loops
31. RNA cannot adopt standard Watson-Crick double helical structure because of
- A) Constraints on its sugar pucker      B) absence of thymine  
 C) single stranded      D) presence of uracil
32. The DNA double helix is quite
- A) unstable      B) deformable  
 C) reactive      D) unstructured



33. Adenosine platform is an
- A) DNA element                      B) RNA structural motif  
C) DNA structural motif            D) Protein element
34. An isolated  $\alpha$ -helix in water
- A) will remain as helix                B) will become  $\beta$ -sheet  
C) will be unstable                    D) will further compact
35. One amino acid among following usually breaks an alpha helix
- A) Proline                                B) Glycine  
C) Leucine                                D) Valine
36. Upper limit of cell size is probably set by
- A) rate of diffusion of solute molecules in aq solutions  
B) cell membrane  
C) genes  
D) genome
37. The Adaptor hypothesis by Crick is
- A) about adaptation                    B) about evolution  
C) about tRNA                          D) about electric circuits
38. In serine proteases, catalytic triad consists of
- A) serine, glycine, histidine        B) serine, histidine, aspartate  
C) serine, proline, histidine        D) serine, leucine, aspartate
39. If one has to think of conducting a charge, which polymer is useful
- A) proteins                                B) DNA  
C) polysaccharides                    D) lipids
40. Coomassie brilliant blue binds to
- A) proteins specifically                B) nucleic acids non specifically  
C) proteins nonspecifically         D) nucleic acids specifically
41. Imprinting involves
- A) DNA polymerization               B) DNA phosphorylation  
C) DNA methylation                    D) DNA fragmentation
42. Evolution is:
- A) directed to a goal                    B) an intelligent design  
C) a random ongoing process        D) over now
43. Biological membranes are associated with all of the following except:
- A) free movement of proteins and nucleic acids across the membrane  
B) sites for biochemical reactions  
C) release of protons when damaged  
D) prevention of free diffusion of ionic solutes

44. Side chain of serine can act as
- A) an electrophile                      B) a nucleophile  
C) a buffer                                D) a hook
45. The van der Waals radius of an atom is
- A) a measure of the size of an atom  
B) a measure of the bond that atom forms  
C) a measure of its charge  
D) a measure of its electric field
46. The only genetically encoded amino acid without a stereoisomer is:
- A) glycine                                B) tryptophan  
C) lysine                                 D) proline
47. Binomial distribution gives
- A) the probability of events with binary outcomes  
B) the measurement of event in binary digits  
C) precision of the measurement in binary digits  
D) accuracy of the measurement in binary digits
48. Which of the following is not a process governed by molecular recognition?
- A) active transport                      B) passive diffusion  
C) translation by the ribosome        D) transcription by RNA polymerase
49. Inverted repeat sequences are also called
- A) palindromes                         B) triplet repeats  
C) nucleosomes                         D) double repeats
50. Which of the following is not involved in the process of translation?
- A) EF-Tu                                 B) EF-C  
C) EF-G                                 D) RF-3

.....

Question Booklet Series : **A** Question Booklet Sr. No. **040072**

## Ph.D. Entrance Test – 2014

Subject : Microbial Biotechnology

### Paper-I

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Roll No.

*In Figure*

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*In Words*

O.M.R. Answer Sheet Serial No.

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Signature of the Candidate \_\_\_\_\_

**Time: 60 minutes**

**Number of Questions: 50**

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1. During the reduction of  $\text{FAD}^+$ 
  - (A) two hydrogen atoms are added to the isoalloxazine ring
  - (B) a flavin group is transferred
  - (C) an equivalent of a hydride ion is transferred
  - (D) the isoalloxazine becomes charged
2. Evidence indicating that chloroplasts were originally free-living prokaryotes which subsequently evolved a symbiotic relationship with a eukaryotic host includes all of the following except the
  - (A) similarities of rRNA sequences between chloroplasts and free living prokaryotes
  - (B) similarities of structures between chloroplasts and some contemporary free-living prokaryotes
  - (C) presence of circular DNA in chloroplasts and in free-living prokaryotes
  - (D) ability of chloroplasts to synthesize all their own proteins
3. Which of the following is a prime example of a ribonucleoprotein enzyme, the catalytic activity of which (under non-physiological conditions), resides solely in its RNA component?
  - (A) reverse transcriptase
  - (B) RNase P
  - (C) cytochrome c
  - (D) bacterial RNA polymerase
4. The C in TORCH group refers to
  - (A) *Candida albicans*
  - (B) *Candida lipolytica*
  - (C) Cytomegaloviruses
  - (D) *Clostridium botulinum*
5. South American sleeping sickness is also called
  - (A) Chagas disease
  - (B) Hansen's disease
  - (C) Yeast disease
  - (D) Prions disease

6. Publication that summarizes the diseases present in the community and their significance published by epidemiologists at CDC is
  - (A) Sign of Disease Report
  - (B) Morbidity and Mortality Weekly Report
  - (C) Diseases of the World Report
  - (D) Disease Control and Pathogen Report
7. In allopatric speciation
  - (A) populations occupy the same habitat and there is a reduction in gene flow
  - (B) populations occupy the same habitat and there is a normal gene flow
  - (C) populations occupy a different habitat and there is a reduction in gene flow
  - (D) populations occupy a different habitat and there is a normal gene flow
8. *Saccharomyces cerevisiae* being grown in a chemostat converts glucose to biomass, ethanol, glycerol and carbon dioxide. At steady state, the concentration of glucose, biomass, ethanol and glycerol will
  - (A) decrease with time
  - (B) increase with time
  - (C) be constant
  - (D) change randomly with time
9. Yield coefficient represents
  - (A) total biomass or product produced
  - (B) conversion efficiency of a substrate into product
  - (C) conversion rate of a substrate into biomass or product
  - (D) production time of biomass or product
10. If biomass yields are constant, then the biomass productivity of a culture grown in continuous reactor will
  - (A) always decrease with dilution rate
  - (B) increase with dilution rate until washout
  - (C) remain constant irrespective of the dilution rate
  - (D) decrease with dilution rate until washout
11. A bacterium having doubling time of 10 minutes, fills a cylindrical vessel completely in 3 hours. How much time will it take to fill half the vessel?
  - (A) 80 minutes
  - (B) 170 minutes
  - (C) 150 minutes
  - (D) 90 minutes
12. *Bacillus anthracis* capsules consist of which one of the following?
  - (A)  $\gamma$ -glutamyl polypeptide
  - (B) hyaluronic acid
  - (C) repeating polysaccharide capsule of glucose and glucuronic acid
  - (D) sialic acid polymers

13. In the penicillin-enrichment method, auxotrophic mutants are isolated based on the following principle
- (A) both the auxotroph and prototroph grow but at different rates in the minimal medium
  - (B) only the prototroph grows and gets killed while the auxotroph remains unaffected
  - (C) while the prototroph grows readily, auxotroph grows with a lag phase
  - (D) only the auxotroph growth is supported by minimal medium
14. Which one of the following sequences has helped in identifying eukaryotes, eubacteria and archaeobacterial cell types?
- (A) signature sequence
  - (B) signal sequence
  - (C) Shine-Dalgarno sequence
  - (D) amino-acid sequence
15. The pathogenesis associated with *Vibrio cholerae* infection depends on the colonization of the small intestine by the microorganism and secretion of an enterotoxin. Which one of the following statement related to pathogenicity of cholera is incorrect?
- (A) *Vibrio cholera* secretes the enterotoxin cholera toxin
  - (B) cholera toxin consists of A (active) and B (binding) subunit
  - (C) cholera toxin alone cannot reproduce the symptoms of cholera in the absence of *Vibrio cholerae*
  - (D) CTX bacteriophage carries the genes of cholera toxin and other virulence factors
16. A higher  $K_s$  value of Monod's equation means
- (A) greater affinities to substrate
  - (B) lower affinities to substrate
  - (C) unaffected with the substrate bonding
  - (D) lower dissociation constant value
17. Damkohler number ( $N_{Da}$ ) is
- (A) the ratio of the maximum reaction rate to the maximum mass transfer rate
  - (B) the ratio of the minimum reaction rate to the maximum mass transfer rate
  - (C) the ratio of the maximum reaction rate to the minimum mass transfer rate
  - (D) the ratio of the minimum reaction rate to the minimum mass transfer rate
18. The very fine asexual spores characteristic of ascomycetes are called
- (A) basidiospores
  - (B) conidia
  - (C) zygospores
  - (D) ascospores
19. Which species of protists are known as the "whirling whips" because of the spin produced by two flagella beating in opposing grooves along their hard-surfaced bodies?
- (A) diatoms
  - (B) chrysophytes
  - (C) dinoflagellates

- (D) golden-brown algae
20. Hydroxymethyl cytosine is found in the DNA of
- (A) simian virus 40
  - (B) phage T4
  - (C) phage QB
  - (D) adenovirus
21. Cyclosporin is an immunosuppressive drug given to avoid transplant rejection which acts by
- (A) inhibition of T cells
  - (B) inhibition of B cells
  - (C) inhibition of immune system
  - (D) inhibition of complement system
22. Which is a characteristic of early stages of local inflammation?
- (A) fever
  - (B) anaphylactic shock
  - (C) release of histamine
  - (D) attack by cytotoxic T cells
23. What is a genomic library?
- (A) a collection of recombinant molecules with inserts that contain all of the genes of an organism
  - (B) a collection of recombinant molecules that have been sequenced
  - (C) a collection of recombinant molecules that express all of the genes of an organism
  - (D) a collection of recombinant molecules with inserts that contain all of an organism's genome
24. Which of the following techniques is used to inactivate a gene by altering the DNA encoding it?
- (A) homologous recombination
  - (B) antisense nucleic acid blocks
  - (C) antibody microinjection
  - (D) introduction of dominant inhibitory mutants
25. During the exponential phase the maximum specific growth rate equals specific growth rate as
- (A) concentration of the growth limiting substrate is much less than the monod constant
  - (B) concentration of growth limiting substrate is much greater than the monod constant
  - (C) specific growth rate increases exponentially
  - (D) concentration of the growth limiting substrate is equal to monod constant
26. Specificity of transcription by RNA polymerase holoenzyme in *E. coli* is altered by changing the
- (A) alpha subunit
  - (B) sigma subunit

- (C) beta subunit
  - (D) beta prime subunit
27. Which of the following viruses replicates its DNA through an RNA intermediate?
- (A) Retrovirus
  - (B) Influenza virus
  - (C) Hepadnavirus
  - (D) Reovirus
28. Flouride is an inhibitor of glycolysis. It inhibits the glycolytic enzyme
- (A) phosphofructokinase
  - (B) glucokinase
  - (C) enolase
  - (D) lactate dehydrogenase
29. Which of the following is not true about helper T cells?
- (A) they function in cell mediated and humoral responses
  - (B) they are activated by polysaccharide fragments
  - (C) they bear surface CD4 molecules
  - (D) they are subject to infection by HIV
30. World Intellectual Property Day 2014 was celebrated with the following theme
- (A) Celebrating innovation and promoting respect for intellectual property
  - (B) Green Innovation
  - (C) Creativity – The Next Generation
  - (D) Movies – a Global Passion
31. Submission to GenBank are made using
- (A) BankIt and Sequin
  - (B) BankIt and BankIt
  - (C) Sequin and BankIt
  - (D) Entrez
32. All of the enzymes of the TCA cycle are located in the mitochondrial matrix except
- (A) citrate synthetase
  - (B)  $\alpha$ -ketoglutarate dehydrogenase
  - (C) succinate dehydrogenase
  - (D) fumarase
33. Which is the first immunoglobulin class to be produced in a primary response to an antigen?
- (A) IgA
  - (B) IgG
  - (C) IgD
  - (D) IgM
34. A mutation in a codon leads to the substitution of one amino acid with another. What is the name for this type of mutation?
- (A) nonsense mutation



- (B) missense mutation
  - (C) frameshift mutation
  - (D) promoter mutation
35. LOD scores are used to predict
- (A) crossover frequency
  - (B) gene sequence
  - (C) gene linkage
  - (D) the number of chromosomes in a genome
36. IR absorption takes place only if incident radiation
- (A) causes a change in dipole moment
  - (B) brings about no change in the dipole movement
  - (C) causes no change in the spin
  - (D) causes no change in the bond angle
37. An electron microscope has higher resolution as compared to the light microscope. This is because
- (A) the wavelength of an electron is longer than the wavelength of light
  - (B) the wavelength of an electron is shorter than the wavelength of light
  - (C) the electron can penetrate the sample better
  - (D) they use different stains
38. Growing *E. coli* cells, when shifted from 37<sup>o</sup>C to 20<sup>o</sup>C, maintain their membrane fluidity by modifying the following parameters
- (A) fatty acid chain length and sterol content
  - (B) fatty acid chain length and unsaturation
  - (C) fatty acid unsaturation and sterol content
  - (D) *E.coli* cannot maintain membrane fluidity
39. Euglenoids are unique among the algae because of their ability
- (A) to synthesize proteins
  - (B) to practice photosynthesis
  - (C) to move
  - (D) to produce carbon dioxide
40. Which of the following is an autoimmune disease?
- (A) Type 1 *Diabetes mellitus*
  - (B) Type 2 *Diabetes mellitus*
  - (C) Haemophilia A
  - (D) Sickle cell anemia
41. FlyBase is a
- (A) biodiversity database
  - (B) model organism database
  - (C) literature database
  - (D) biomolecular database

42. The Cartagena Protocol on Biosafety was adopted in 2000 and entered into force on
- (A) 29<sup>th</sup> August, 2000
  - (B) 12<sup>th</sup> September, 2001
  - (C) 21<sup>st</sup> August, 2002
  - (D) 11<sup>th</sup> September, 2003
43. For which of the following organisms is there no known animal reservoir?
- (A) *Bordetella pertussis*
  - (B) *Pasteurella multocida*
  - (C) *Brucella melitensis*
  - (D) *Francisella tularensis*
44. High titres of antinuclear antibodies are indicative of
- (A) parasitic infection
  - (B) fungal diseases
  - (C) autoimmune diseases
  - (D) bacterial diseases
45. Hydrogen cyanide binds to the active site of an enzyme that is part of the pathway that forms ATP in cells; in this way, it prevents the enzyme's activity. Hence, hydrogen cyanide can best be described as a
- (A) coenzyme
  - (B) cofactor
  - (C) allosteric modulator
  - (D) competitive inhibitor
46. Strains of *Neisseria gonorrhoeae*, as usually isolated from the genito-urinary tract of humans suffering from gonorrhoea, oxidize glucose, but not lactose, and are catalase and oxidase positive. Strains with such characteristics are considered to be
- (A) auxotrophic
  - (B) prototrophic
  - (C) wild type
  - (D) mutant
47. CD40 ligand is seen only on
- (A) macrophages
  - (B) cytotoxic T cells
  - (C) helper T cells
  - (D) dendritic cells
48. The Hardy-Weinberg Law describes
- (A) genotype frequencies of a population when evolutionary forces are not acting
  - (B) how sexual reproduction would change the relative gene frequencies in a population
  - (C) how mutations occur and balance each other
  - (D) genotype frequencies of a population when evolutionary forces are acting

49. The main difference between active transport and facilitated diffusion is that
- (A) in active transport the molecules move from areas of high concentration to areas of low concentration
  - (B) carrier protein is involved only in case of active transport
  - (C) in active transport energy is consumed to move molecules against a concentration gradient
  - (D) in active transport only water molecules are transported
50. Rho factor present in bacteria is involved in
- (A) initiation of DNA synthesis
  - (B) initiation of transcription
  - (C) termination of transcription
  - (D) termination of DNA synthesis

Question Booklet Series : **A** Question Booklet Sr. No. **041047**

## Ph.D. Entrance Test – 2014

Subject : Environment Science

Paper-I

**Important:** Please consult your Admit Card/Roll No. slip before filling your Roll Number on the Test Booklet and Answer Sheet.

Roll No.

*In Figure*

*In Words*

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O.M.R. Answer Sheet Serial No.

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Signature of the Candidate \_\_\_\_\_

**Time: 60 minutes**

**Number of Questions: 50**

**Maximum Marks : 50**

### INSTRUCTIONS

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1. The instrument used for determination of transparency of water is
  - A) Spectrophotometer
  - B) Ekman dredge
  - C) Conductivity bridge
  - D) Secchi disc
2. Which one of the following is the correct food chain?
  - A) Algae → Daphnia → Dragon Fly Nymph → Newt → Grass Snake
  - B) Daphnia → Dragon Fly Nymph → Newt → Algae → Grass Snake
  - C) Grass Snake → Newt → Dragon Fly Nymph → Daphnia → Algae
  - D) Newt → Grass Snake → Dragon Fly Nymph → Algae → Daphnia
3. Which compound is usually used as a reference to check the heat capacity of calorimeter
  - A) Benzoyl chloride
  - B) Benzoic acid
  - C) Benzene
  - D) Benzophenone
4. Which of the following statement about energy flow is incorrect?
  - A) Secondary productivity declines with each trophic level.
  - B) Only net primary productivity is available to consumers.
  - C) About 90% of the energy at one trophic level does not appear at the next.
  - D) Eating meat is probably the most economical way of acquiring the energy of photosynthetic productivity.
5. Nernst Glower which is a source of IR radiation, made up of
  - A) Ga, Zr, Y
  - B) Zr, Er, Rb
  - C) Zr, Y, Er
  - D) Ba, Sc, Na
6. According to the Central Pollution Control Board, particles that are responsible for causing great harm to human health are of diameter:
  - A) 2.50 micrometers
  - B) 5.00 micrometers
  - C) 10.00 micrometers
  - D) 7.5 micrometers
7. Ecologically sensitive and important areas, breeding and spawning grounds of marine life etc., are categorized in coastal Regulation Zone as:
  - A) CRZ - IV
  - B) CRZ - II
  - C) CRZ - III
  - D) CRZ - I
8. Which of the following organisms are used as components of bio fertilizers?
  - A) Blue green Algae only
  - B) Coliform bacteria and mushrooms
  - C) N-Fixing bacteria only
  - D) Blue green algae and N-fixing bacteria
9. Organisms which require ingestion of one or several organic compounds are called.
  - A) Bio concentration
  - B) Biological Oxygen Demand
  - C) Bioaccumulation
  - D) Biomagnification

10. Replacement of existing communities by any external condition is termed as  
A) Primary succession  
B) Secondary succession  
C) Autogenic succession  
D) None of the above
11. Agent orange is a?  
A) Weedicide  
B) Fungicide  
C) Nematicide  
D) Rodenticide
12. Which of the following is not a characteristic feature of community?  
A) Populations of different species occupying a particular place.  
B) Complex interacting network of plants, animals and microbes.  
C) Different species interacting with one another and with their environment of matter and energy.  
D) Groups of interacting individuals of different species.
13. The bacteria responsible for deposition of iron oxide in water pipes.  
A) *Klebsilla*  
B) *Gallionela*  
C) *Thermococcus*  
D) *Helicobacter*
14. Those planktons which have dimensions in the range of 2-20  $\mu\text{m}$  are known as.  
A) Micro plankton  
B) Nano plankton  
C) Peri plankton  
D) Pico plankton
15. The first national park established in India  
A) Indra Gandhi National Park  
B) Indravatti National Park  
C) Corbett National Park  
D) Kaziranga National Park
16. Ozone toxicity to plants is generally due to involvement of which unsaturated hydrocarbons.  
A) Unsaturated fatty acid  
B) Methylene  
C) Ethylene  
D) Acetylene
17. The least preferred technique in the disposal of municipal solid waste is:  
A) incineration  
B) composting  
C) land filling  
D) bricketting
18. The first CFC was synthesised in:  
A) 1892  
B) 1920  
C) 1980  
D) 1800
19. In which year, Bhopal Gas Tragedy occurred.  
A) December 5, 1984  
B) December 3, 1984  
C) January 3, 1985  
D) November 3, 1984
20. Reaction of  $\text{Pb}^{2+}$  with  $\text{K}_2\text{CrO}_4$  yield  
A) White crystalline solid  
B) White ppt  
C) Yellow ppt  
D) Bright red ppt

(3)

21. Assertion (A): Negatively charged soil particles attract positive ions like  $\text{Ca}^{++}$  and  $\text{Mg}^{++}$   
Reason (R): The attraction keeps the ions at soil level for ready availability.
- A) Both (A) and (R) are true and (R) is the correct explanation of (A)  
B) Both (A) and (R) are true but (R) is not the correct explanation of (A)  
C) (A) is true but (R) is false  
D) (A) is false but (R) is true
22. Why is it necessary to remove sulphur from petroleum products?
- A) To reduce the emission of sulphur dioxide in exhaust fumes  
B) To increase efficiency of automobiles engines  
C) To use sulphur removed from petroleum for commercial purposes  
D) To increase the life span of engine silencers
23. To conserve coral reefs the Govt. of India declared one of the following as Marine Park:
- A. Gulf of Kutch  
B) Lakshadweep islands  
C) Gulf of Mannar  
D) Andaman Islands
24. Which two of the following statements regarding ISO 14000 series of standards are true? Answer choosing the code given below:
- (i) ISO 14000 standards are based on a principle assumption that better environmental management will lead to better environmental performance.  
(ii) ISO M<sup>o</sup>C/u standards are regulatory standards developed by ISO  
(iii) ISO 14000 standards are market driven and therefore are based on voluntary involvement of all interests in the market place.  
(iv) The adoption of ISO 14000 is a one time commitment
- A) (i) and (ii)  
B) (ii) and (iii)  
C) (i) and (iii)  
D) (iii) and (iv)
25. A paddy field is an example of
- A) Fresh water ecosystem  
B) Terrestrial ecosystem  
C) Auto ecosystem  
D) Engineered ecosystem
26. Which of the following is the best volatilizer of Selenium metal?
- A) Lolium  
B) Brassica  
C) Panicum  
D) Populus
27. The placement of vertical or horizontal layers of brush/ vegetation into the soil for reclamation/ restoration is known as
- A) Stacking  
B) Hydromulching  
C) Trenching  
D) Wattling
28. Residence time of water molecule in the ocean is:
- A) 3.5 years  
B) 3.5 million years  
C) 35 years  
D) 35000 years

29. Which of the following pattern of evolution accounts for all the diversity present on earth today?
- A) Microevolution  
B) Megaevolution  
C) Biodiversity  
D) Speciation
30. Which one of the following statements regarding El-NINO is NOT true?
- A) It is an extension of equatorial current towards the western coast of South America.  
B) It is an occasional warm current leading to an increase of about  $10^{\circ}\text{C}$  in subsurface water temperature.  
C) It develops as temporary replacement of usual cold Peruvian Current.  
D) It causes an increase in plankton thriving in cold Peruvian current.
31. Cost Benefit analysis is required in case of proposals involving clearance of forest land:
- A) Greater than 10ha but less than 20ha  
B) Greater than 20ha  
C) Greater than 5ha but less than 10ha  
D) Greater than 40ha only
32. Spotted deer, Asiatic wild ass, Black buck are
- A) Vulnerable species  
B) Endangered species  
C) Threatened species  
D) Key species
33. Which of the following group of plants is most resistance to ionizing radiations?
- A) Coniferous Forest  
B) Grass Land  
C) Lichen and Mosses  
D) Mixed Forest
34. Which one of the following is the most productive ecosystem?
- A) Oligotropic Lake  
B) High Sea  
C) Estuary  
D) Savanna
35. Under anaerobic condition denitrifying *Pseudomonas* changes.
- A) Nitrate to molecular nitrogen  
B) Nitrate to ammonia  
C) Nitrate to nitrite  
D) Nitrate to nitrate
36. Which bacterium found in soil is anaerobic?
- A) *Azotobacter* Sp  
B) *Clostridium* Sp  
C) *Bacillus* Sp  
D) *Thiobacillus* Sp
37. Which of the following is not a major biome of India?
- A) Tropical rain forest biomes  
B) Tropical deciduous forest biomes  
C) Temperature needle leaf forest biomes  
D) Mountains and glaciers



38. Dachigum National Park is associated with  
A) Leopard  
B) Barking deer  
C) Rhinoceros  
D) Hangul
39. In an ecotone, the species which become abundant are called.  
A) Edge species  
B) Keystone species  
C) Endemic species  
D) Foster species
40. IAIA stands for.  
A) Indian Assembly of Impact Assessment  
B) International Association of Impact Assessment  
C) Indian Association of Impact Assessment  
D) International Assembly of Impact Assessment
41. DDT molecule has:  
A) One tetrahedral carbon, two flat benzene rings  
B) Two tetrahedral carbons, two flat benzene rings  
C) Two tetrahedral carbons, two benzene rings  
D) No tetrahedral carbon, two flat benzene rings
42. Which is not true for MIC?  
A) Insoluble in water  
B) B.P. in the range of 43-45°C  
C) Lachrymatory  
D) Colourless
43. Outer electronic configuration of mercury.  
A)  $d^{10} s^2$   
B)  $d^{10} s^0$   
C)  $d^9 s^1$   
D)  $d^9 s^2$
44. Calculate the pH of 0.0001 M HCl solution.  
A) 2  
B) 4  
C) 6  
D) 8
45. Which types of radiations are emitted from mobile during conversation?  
A) I.R.  
B) Microwave  
C) RFEMR  
D) FM and AM
46. If an arranged series of n observation (n being an odd no), the median is the value of  
A)  $(n + 1) / 2$   
B)  $n / 2 + 1$   
C)  $n + 2$   
D)  $n + 1 / 2$
47. If the mean of Poisson distribution is 4. Find the standard deviation?  
A) -1  
B) -2  
C) 2  
D) 1

(6)

48. The mean of 18 observations is -7 and if each observation is increased by 3, the mean of the new set is
- A) -4      B) -3      C) 2      D) 3
49. When an observation in the data is zero, then its geometric mean is?
- A) Negative      B) Zero  
C) Positive      D) Cannot be calculated
50. Which one of the following is not a bioindicator of water pollution?
- A) Blood-worms      B) Sludge-worms  
C) Sewage fungus      D) Stone flies

x-x-x

Question Booklet Series : **A** Question Booklet Sr. No. **042017**

## Ph.D. Entrance Test – 2014

**Subject : Geology**

**Paper-I**

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Roll No.

*In Figure*

*In Words*

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O.M.R. Answer Sheet Serial No.

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*Signature of the Candidate*

**Time: 60 minutes**

**Number of Questions: 50**

**Maximum Marks : 50**

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- Q. 1: Which of the following is characteristic for the rivers in youth stage ?
- A) Meandering;                      B) Piedmont;  
C) River piracy;                      D) Sloughs.
- Q.2: Which of the following term is used a fold structure whose two limbs dips at  $70^\circ$  towards  $N80^\circ E$  and  $N80^\circ W$  ?
- A) Upright non-plunging fold;    B) Inclined non-plunging fold;  
C) Upright plunging fold;        D) Inclined plunging fold.
- Q.3: Which of the following is the ratio of Si : Al in cyclosilicates?
- A) 1 : 1                                  B) 1 : 3  
C) 4 : 11                                D) 2 : 5
- Q.4: Which one of the following contains the highest amount of silica?
- A) Andesite;                            B) Basalt;  
C) Rhyolite;                            D) Trachyte.
- Q.5: Which one of the following denotes a texture of K-feldspars surrounded by a rim of plagioclases?
- A) Ophitic;                              B) Hiatal;  
C) Rapakivi;                            D) Microlitic
- Q.6: Sediments produced by the erosion of mountain ranges subsequent to an orogenic episode are know as:
- A) Pre-flysch;                          B) Flysch;  
C) Post flysch;                        D) Molasse.
- Q.7: Shales are characterised by
- A) High porosity, low permeability;    B) Low porosity, low permeability;  
C) High porosity, high permeability;    D) Low porosity, high permeability.

- Q. 8: Which one of the following conditions is characteristic for the deposition of orthoquartzites?**
- A) Stable, shallow shelf;                      B) Unstable, shallow shelf;  
C) Stable, deep sea;                              D) Unstable, deep sea.
- Q.9: Which one of the following suggests an increasing grade of metamorphism?**
- A) Slate-schist-phyllite;                      B) Phyllite-schist-slate;  
C) Schist-slate-phyllite;                      D) Slate-phyllite-schist.
- Q. 10: Which of the following terms is used to denote the process of complete melting and mixing of rocks with the production of new magma?**
- A) Palinogenesis;                                B) Anatexis;  
C) Ultrametamorphism;                      D) Autometamorphism.
- Q.11: The study of trace fossils is known as**
- A) Palaeoecology                                B) Synecology  
C) Ichthyology                                    D) Ichnology.
- Q. 12: Which of the following molluscs are entirely marine?**
- A) Cephalopods;                                B) Gastropods;  
C) Pelecypods;                                  D) None of the above.
- Q. 13: Which of the following is the dominant micro-organism of the abyssal oceanic regions?**
- A) Diatoms;                                        B) Ostrocods;  
C) Foraminifers;                                D) Radiolarians.
- Q.14: Which one of the following unit contain well preserved stromatolites?**
- A) Suket Shales;                                B) Bleaching Shales;  
C) Fawn Limestone;                            D) Kajrahat Limestone.
- Q.15: What is the stratigraphic age of the Badhaura Formation?**
- A) Precambrian;                                B) Cambrian;  
C) Permian;                                        D) Jurassic.
- Q.16: Which of the following gives the correct list of minerals in their decreasing order of consumption in the manufacture of cement?**
- A) Limestone, gypsum, coal, bauxite and iron ore;  
B) Limestone, coal, gypsum, bauxite and iron ore;  
C) Limestone, coal, gypsum, iron ore and bauxite;  
D) Limestone, gypsum, coal, iron ore and bauxite.

Q. 17: Which of the following term is used to denote the relicts of original minerals and textures in metamorphic rocks:

- A) Palimpsest;
- B) Nematoblastic;
- C) Lepidoblastic;
- D) Decussate.

Q.18: Which of the following represents the nature of the Mohorovicic boundary ?

- A) P-T boundary
- B) Compositional boundary
- C) Phase-change boundary
- D) Compositional and Phase-change boundary.

Q.19: Select the code from below that represents the age denoted by the index fossil Discocyclus?

- A) Palaeocene
- B) Middle Eocene
- C) Miocene
- D) Pliocene

Q. 20: Select the code from below that gives the character of the test of Nummulites.

- A) Involute
- B) Convolute
- C) Evolute
- D) None of the above.

Q. 21: Which of the following fossil group has phosphatic wall composition?

- A) Foraminifera
- B) Conodonta
- C) Diatom
- D) Ostracoda

Q.22: Select the code from below that gives the correct order of crystallisation of minerals according to the Bowen's reaction principle.

- A) Mg-pyroxene-Hornblende-Biotite-Orthoclase
- B) Olivine-Pyroxene-Orthoclase-Hornblende
- C) Fe-pyroxene-Plagioclase-Mg-pyroxene-Quartz
- D) Olivine-Orthoclase-Plagioclase-Quartz

Q.23: Select the code from below that gives the predominant factors that give rise to the development of the foliation in metamorphic rocks.

- A) Stress & temperature
- B) Lithostatic pressure & temperature
- C) Temperature & fluid pressure
- D) Fluid pressure & stress

Q. 24: Which of the following rocks shows pillow structure?

- A) Komatite
- B) Carbonatite
- C) Rhyolite
- D) Spilite

Q. 25: Select the code from below that is the characteristic for granulose structure?

- A) Predominance of in-equidimensional minerals
- B) Predominance of equidimensional minerals
- C) Equal proportion of both in-equidimensional and equidimensional minerals
- D) None of the above.

- Q.26: The half life of  $^{238}\text{U}$  is:**
- A) Much greater than the age of earth  
 B) Almost similar to the age of moon  
 C) Almost similar to the age of earth  
 D) Much greater than the age of moon
- Q. 27: At convergent plate boundaries:**
- A) Two plates are moving apart  
 B) One plate remains stationary  
 C) One plate moves and other is consumed  
 D) There is no movement
- Q. 28: Plate movements take place at junction of:**
- A) Sialic and somatic layers  
 B) Lower crust and upper crust  
 C) Crust and the mantle  
 D) Lithosphere and asthenosphere
- Q.29: Development of badland topography takes place over:**
- A) Clay in sub-humid region  
 B) Shale in arid region  
 C) Calcareous rock in humid region  
 D) Calcareous rock in arid region
- Q.30: Which one of the following is the incorrect statement?**
- A) The ideal season for taking aerial photograph for geological purpose is early spring  
 B) The ideal time for taking aerial photographs of sand dunes is early morning  
 C) Scale of an aerial photograph is not related to the flight height  
 D) Infra-red photographs can be taken during night
- Q. 31: A 1: 50000 scale topographic map shows a straight road going up a uniform slope. The distance between two consecutive kilometre stones, one km apart, as marked on the map would be:**
- A) 2cm  
 B) Greater than 2cm  
 C) Less than 2cm  
 D) May be greater or less than 2cm depending upon the slope
- Q. 32: Which of the following system has all closed forms:**
- A) Tetragonal  
 B) Cubic  
 C) Monoclinic  
 D) Orthorhombic.
- Q. 33: Choose the correct statement:**
- A) Calcite is harder than aragonite  
 B) Aragonite has higher specific gravity than calcite  
 C) Aragonite and calcite crystallize in the same crystal system  
 D) Aragonite and calcite have similar axial ratios.
- Q. 34: Jasper is a form of silica which is:**
- A) Crystalline  
 B) Amorphous  
 C) Cryptocrystalline  
 D) None of the above

Q. 35: Match list I with list II and select the correct answer using the code given below the lists:

	<u>List I</u>		<u>List II</u>
a)	Iron	1)	Sukinda
b)	Gypsum	2)	Mangampet
c)	Barite	3)	Goa
d)	Chromite	4)	Jamsar

Code

	<u>a</u>	<u>b</u>	<u>c</u>	<u>d</u>
A	4	2	3	1
B	3	2	4	1
C	3	4	2	1
D	4	3	2	1

Q. 36: Rocks formed by metasomatism at igneous contacts is defined as

- A) Spotted schist                      B) Aureole  
C) Skarns                                 D) Hornfels

Q.37: Which one of the following represents a correct magmatic fractionation trend?

- A) Basalt-Dacite-Trachyte-Rhyolite  
B) Basalt-Andesite-Trachyte-Rhyolite  
C) Basalt-Dacite-Andesite-Trachyte  
D) Basalt-Andesite-Dacite-Trachyte

Q.38: What is the correct sequence of appearance of minerals with increasing grade of Barrovian type metamorphism?

- A) Staurolite-Kyanite-Annite-Fibrolite  
B) Staurolite-Kyanite-Fibrolite-Annite  
C) Annite-Staurolite-Fibrolite-Kyanite  
D) Annite-Staurolite-Kyanite-Fibrolite

Q.39: A crystal form having faces on only one side of a symmetry axis is called

- A) Pseudomorphic                      B) Hemihedral  
C) Hemimorphic                         D) Holohedral

Q. 40: Miller indices contains

- A) Neither fractions nor a common factor                      B) Both fraction and a common factor  
C) Either fraction or a common factor                             D) Irrational numbers

Q.41: The incorrectly matched pair among the following is

- A) Actinolite : Double chain silicate  
B) Enstatite: Single chain silicate  
C) Serpentine: Island silicate  
D) Oligoclase: Framework silicate



Q.42: The generalised chemical composition of mica is

- A)  $X_2Y_{4-6}Z_8O_{20}(OH,F)_4$
- B)  $X_{4-6}Y_2Z_8O_{20}(OH,F)_4$
- C)  $X_2Y_{4-6}Z_8O_{22}(OH,F)_4$
- D)  $X_{4-6}Y_2Z_8O_{22}(OH,F)_4$

Q.43: Which one of the following pairs is NOT correctly matched?

- A) Rhyolite: Pillow structure
- B) Basalt: Columnar joints
- C) Gabbro: Ophitic texture
- D) Trachyte: Flow structure

Q.44: The symmetry of the Tetrahedrite class is:

- A) 6 planes, 7 axes, no centre;
- B) 3 planes, 7 axes, a centre;
- C) 5 planes, 5 axes, a centre
- D) 9 planes, 13 axes, a centre

Q. 45: Which of the following has highest compressive strength:

- A) Dolomite
- B) Quartzite
- C) Limestone
- D) Sandstone

Q.46: Which of the following represents a glassy modification of an acidic lava?

- A) Obsidian
- B) Tektite
- C) Trachyte
- D) Limburgite

Q.47: Which of the following binary systems exhibits the phenomenon of incongruent melting?

- A) Diopside-Leucite
- B) Albite-Anorthite
- C) Forsterite-Fayalite
- D) Forsterite-Silica

Q.48: Which of the following demarcates the Archaean-Proterozoic boundary?

- A) 1900Ma
- B) 2500 Ma
- C) 3000 Ma
- D) 300 Ma

Q.49: Which of the following regions is characterized by shallow earthquakes?

- A) Hot spots
- B) Mid-oceanic ridges
- C) Island arcs
- D) Subduction zone

Q. 50: Which of the following is the correct order of palaeomagnetic events?

- A) Brunhes normal-Gilbert reversed-Gauss normal-Matuyama reversed
- B) Gauss normal-Matuyama reversed-Brunhes normal-Gilbert reversed
- C) Brunhes normal-Matuyama reversed-Gauss normal-Gilbert reversed
- D) Gauss normal-Gilbert reversed-Brunhes normal-Matuyama reversed

Question Booklet Series : **A** Question Booklet Sr. No. **043102**

## Ph.D. Entrance Test – 2014

Subject : Physics

Paper-I

**Important:** Please consult your Admit Card/Roll No. slip before filling your Roll Number on the Test Booklet and Answer Sheet.

Roll No. *In Figure* *In Words*

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O.M.R. Answer Sheet Serial No.

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Signature of the Candidate \_\_\_\_\_

**Time: 60 minutes**

**Number of Questions: 50**

**Maximum Marks : 50**

### INSTRUCTIONS

1. Write your roll No. on the Question Booklet and also on the OMR Answer Sheet in the space provided and nowhere else.
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8. If you want to change an already marked answer, erase the shade in the darkened bubble completely.
9. For rough work only the blank sheet at the end of the Question Booklet be used.
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13. A candidate who creates disturbance of any kind or changes his/her seat or is found in possession of any paper possibly of any assistance or found giving or receiving assistance or found using any other unfair means during the examination will be expelled from the examination by the Centre Superintendent/Observer whose decision shall be final.
14. **Telecommunication equipment such as pager, cellular phone, wireless, scanner, etc., is not permitted inside the examination hall. Use of calculators is not allowed.**

- Which of the following is untrue for a magnetic material
  - Every material has a diamagnetic contribution
  - Every material has a paramagnetic contribution
  - Even if all the spins are paired and full, diamagnetic contribution remains.
  - Ferromagnetic contribution arises only if there is a finite value of exchange interaction.
- There are two dices which are rolled. The total number of microstates and macro states resulting are
 

A) 11 and 36	B) 36 and 11
C) 36 and 12	D) 6 and 12.
- Expression for Gibbs free energy is
 

A) $U+TS$	B) $U-TS$
C) $U+TS+PV$	D) $U-TS+PV$
- Thermal energies are of the order of
 

A) .03eV	B) 1eV	C) 1MeV	D) 3eV
----------	--------	---------	--------
- In each energy band of a small piece of solid containing 1000 atoms, the number of closely spaced energy levels is
 

A) 50	B) $10^{23}$	C) 5000	D) 1000
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- Relaxation time for conduction electrons on metal is of the order of
 

A) $10^{-3}$ s	B) $10^{-9}$ s
C) 1s	D) much smaller than nano second
- If  $\tau_1$  and  $\tau_2$  are relaxation times for two scattering processes, the combined effect of these is determined by a net relaxation  $\tau$  given as
 

A) $\tau$ as average of the two, i.e. $(\tau_1 + \tau_2)/2$
B) $\tau$ as geometric mean of the two, i.e. $(\tau_1 \tau_2)^{1/2}$
C) $\tau = [\tau_1 + \tau_2]$
D) $1/\tau = 1/\tau_1 + 1/\tau_2$
- Volume of a primitive cell of a bcc structure with lattice constant  $a$  is
 

A) $a^3$	B) $a^3/2$	C) $a^3/3$	D) $2a^3$
----------	------------	------------	-----------
- Which of the following is untrue for a magnetic material
  - Every material has a diamagnetic contribution
  - Every material has a paramagnetic contribution
  - Even if all the spins are paired and full, diamagnetic contribution remains
  - Ferromagnetic contribution arises only if there is a finite value of exchange interaction.
- If heat capacity of metals is  $C_v$ , then  $C_v/T$  at low temperatures
 

A) is a constant equaling $3R$	B) varies directly as $T$
C) varies as $T^2$	D) varies as $T^3$

11. What is the degeneracy of  ${}^3G_5$  atomic state?  
 (A) 15 (B) 11  
 (C) 9 (D) 9
12. Rotational constant,  $B$ , of  $N_2$  can be determined experimentally by  
 (A) Rayleigh scattering (B) Raman scattering  
 (C) UV-visible absorption (D) Far infrared absorption
13. If the ionization energy of H atom is 13.6 eV, the energy required to remove electron from the first excited state of H atom is  
 (A) 5.13 eV (B) 1.51 eV  
 (C) 13.6 eV (D) 3.4 eV
14. If  $\frac{1}{\sqrt{2}} [\psi_{2s}(1)\psi_{2s}(2) + \psi_{2s}(2)\psi_{2s}(1)]$  is the spatial wavefunction of electronic configuration,  $2s^2$ , where 1 and 2 represent first and second electrons, respectively, then wavefunction of the system, can be written in terms of up and down spin functions  $\chi^+$  and  $\chi^-$ , respectively  
 (A)  $\chi^+(1)\chi^+(2)$  (B)  $\chi^-(1)\chi^-(2)$   
 (C)  $\frac{1}{\sqrt{2}} [\chi^+(1)\chi^-(2) - \chi^-(1)\chi^+(2)]$  (D)  $\frac{1}{\sqrt{2}} [\chi^+(1)\chi^-(2) + \chi^-(1)\chi^+(2)]$
15. In two valance electrons systems, the spectroscopic terms calculated from  
 (A)  $LS$  coupling and  $jj$  coupling will be equal.  
 (B)  $LS$  coupling will be more than  $jj$  coupling.  
 (C)  $LS$  coupling will be less than  $jj$  coupling.  
 (D) one coupling will be more or less to the other coupling, depending on the given electronic configuration and atomic system.
16. A transformer is used for  
 (A) Frequency modulation (B) Impedance matching  
 (C) Rectification of sinusoidal signal (D) Analog-to-digital conversion
17. A 400 W carrier wave is modulated to depth of 75 %. The power of the modulated wave will be  
 (A) 50 W (B) 475 W  
 (C) 300 W (D) 512 W
18. A transistor acts like a diode and a  
 (A) Voltage source (B) Current source  
 (C) Resistance (D) Power supply

19. The logic family with the shortest propagation delay is  
 (A) CMOS (B) BiCMOS  
 (C) ECL (D) 74SXX
20. The digital logic expression  $\overline{(X + Y)} + Z$ , is equivalent to  
 (A)  $(X + Y)Z$  (B)  $(\overline{X} + \overline{Y})Z$   
 (C)  $(X + Y)\overline{Z}$  (D)  $(\overline{X} + \overline{Y})\overline{Z}$
21. The postulate that wave function  $\Psi(\vec{r})$  in quantum mechanics is a probability amplitude and  $|\Psi(\vec{r})|^2$  is probability density for localizing a particle at  $\vec{r}$  on measurement is due to  
 A) Bohr B) S N Bose C) Heisenberg D) Dirac
22. The value of the integral  $\int_0^3 (2x^2 + 7x + 3) \delta(x - 1) dx$  is  
 A) 0 B) 3 C) 1 D) 12
23. At  $t = 0$ , Hydrogen atom is in state  $|\Psi\rangle$  given by  
 $|\Psi\rangle = \frac{1}{\sqrt{2}} |1S0\rangle + \frac{i}{3\sqrt{2}} |2P1\rangle + \frac{1}{3\sqrt{2}} |2P-1\rangle + \frac{\sqrt{7}}{3\sqrt{2}} |2P0\rangle$   
 where kets  $|n l m\rangle$  represents normalized states. Find the value of  $\langle \Psi | L^2 | \Psi \rangle$   
 A) -1 B) 0 C) 1/2 D) 1
24. In case of wave function  $\Psi(\vec{r}) = \frac{e^{i\mathbf{k}\cdot\mathbf{r}}}{r}$ , the probability current density is  
 A)  $\frac{v}{r^2}$  B)  $\frac{v}{r}$  C)  $\frac{v}{r^3}$  D)  $v$
25. The degree of degeneracy for three dimensional isotropic harmonic oscillator is  
 A)  $n^2$  B)  $2n + 1$   
 C)  $(2n + 1)(2n + 2) / 2$  D)  $(n + 1)(n + 2) / 2$
26. Which of the following elementary particle is a lepton  
 A) photon B) muon C) pion D) neutron
27. Which of the following statement regarding neutrino is wrong?  
 A) neutrino has spin  $1/2$  B) neutrino has almost zero mass  
 C) neutrino does not interact with matter pion D) neutrino has charge
28. Which of the following is allowed?  
 A)  $\tau^- \rightarrow e^- + \gamma$  B)  $\tau^- \rightarrow \mu^- + \gamma$   
 C)  $\tau^- \rightarrow e^- + \mu^- + \mu^+$  D)  $\tau^- \rightarrow \mu^- + \bar{\nu}_\mu + \nu_\tau$
29. Quark content of  $\pi^+$  is  
 A)  $u\bar{d}$  B)  $u\bar{u}$  C)  $\bar{d}u$  D)  $d\bar{d}$
30. A high energy proton (rest mass  $M$ ) strikes a proton at rest, creating proton-antiproton pair in addition to the original particles. What is the minimum total energy of the incident proton for the reaction to occur?  
 A)  $2Mc^2$  B)  $4Mc^2$  C)  $6Mc^2$  D)  $7Mc^2$

31. For the complex function  $f(Z) = \frac{Z}{(2Z+1)(5-Z)}$ , what is the residue at  $Z = \frac{1}{2}$ ?
- A)  $-\frac{1}{22}$       B)  $-\frac{1}{11}$       C)  $-\frac{1}{24}$       D)  $\frac{1}{24}$
32. Which of the following properties is not satisfied by a group "G"?
- A) Closure      B) Associativity  
C) Existence of Inverse      D) Non existence of Inverse
33. What is the value of  $x\delta(x)$ ?
- A) 0      B) 1      C)  $\frac{1}{2}$       D)  $\infty$
34. The value of  $\Gamma(Z)\Gamma(-Z)$  is
- A)  $\frac{\pi}{\sin\pi Z}$ ,  $Z \neq \text{integer}$       B)  $-\frac{\pi}{\sin\pi Z}$ ,  $Z \neq \text{integer}$   
C)  $\frac{\pi}{Z\sin\pi Z}$ ,  $Z \neq \text{integer}$       D)  $-\frac{\pi}{Z\sin\pi Z}$ ,  $Z \neq \text{integer}$
35. In which domain(s) of the complex plane is  $f(z) = |x - iy|$  an analytic function?
- A) In all the four quadrants  
B) Only in the second and fourth quadrants  
C) Only in the second quadrants  
D) Only in the fourth quadrants
36. Which one of the following nucleus is a halo nucleus?
- A)  ${}^{11}\text{Li}$       B)  ${}^6\text{Li}$       C)  ${}^7\text{Li}$       D)  ${}^{12}\text{C}$
37. What is the wavelength of thermal (0.025eV) neutrons?
- A)  $1.81 \times 10^{-10} (m)$       B)  $1.81 \times 10^{-11} (m)$   
C)  $1.81 \times 10^{-12} (m)$       D)  $1.81 \times 10^{-14} (m)$
38. What is the expected ground state spin of  ${}^{31}\text{P}$ ?
- A)  $\frac{3}{2}$       B)  $\frac{5}{2}$       C)  $\frac{7}{2}$       D)  $\frac{1}{2}$
39. Normally fusion reaction (Hot and Cold) is used for the production of super-heavy nuclei, other than this method which of the following reaction can be used for the super-heavy production?
- A) Alpha induced reaction      B) Transfer reaction  
C) Deuteron induced reaction      D) Proton induced reaction
40. What is the energy of the excited state of  ${}^{16}\text{O}$ , which emits a 6128.63 KeV  $\gamma$  ray when it de-excites to the ground state?
- A) 6128.63 KeV      B) 6132.45 KeV  
C) 6127.52 KeV      D) 6129.89 KeV

41. Work done by a force  $\mathbf{F} = (5x\text{N})\mathbf{i} + (4\text{N})\mathbf{j}$ , with  $x$  in meters, that acts on a particle as it moves from coordinates (2 m, 3 m) to (3 m, 0 m) is  
 A) 3 J                      B) -9/2 J                      C) 1/2 J                      D) zero
42. Which components of linear momentum and/or angular momentum are conserved in motion in the field of an infinite homogeneous cylinder whose axis is oriented along the  $z$ -axis?  
 A)  $z$ -component of angular momentum only  
 B)  $z$ -component of linear momentum and  $z$ -component of angular momentum  
 C)  $x$ - and  $y$ -components of linear momentum only  
 D)  $x$ - and  $y$ -components of linear momentum and  $z$ -component of angular momentum
43. Any rigid body can acquire equilibrium if it is acted upon by  
 A) A single force    B) Two non-linear forces  
 C) Three coplanar forces                                      D) Any number of forces
44. Kepler's second law of planetary motion is a consequence of conservation of  
 A) Area                      B) Energy                      C) Momentum                      D) Angular momentum
45. Which of the following is true about position vector and linear momentum?  
 A) Position vector and linear momentum are both polar vectors.  
 B) Position vector and linear momentum are both axial vectors.  
 C) Position vector is a polar vector and linear momentum is an axial vector.  
 D) Position vector is an axial vector and linear momentum is a polar vector.
46. If the equations of transformation that define the generalised coordinates do not depend explicitly on time and the potential energy is velocity-independent then  
 A) Hamiltonian is the total energy and also a constant of motion  
 B) Hamiltonian is the total energy but not necessarily a constant of motion  
 C) Hamiltonian is not necessarily the total energy but a constant of motion  
 D) Hamiltonian is neither necessarily the total energy nor a constant of motion
47. Which of the following vector operations are correct?  
 A) Curl of a curl and div of a curl are always zero  
 B) Curl of a grad and grad of div are always zero  
 C) Curl of a grad and div of a curl are always zero  
 D) Curl of a curl and grad of a div are always zero
48. Which of the following statements is not true for the electromagnetic wave emitted by an electric dipole?  
 A) Power radiated is directly proportional to the square of the magnitude of the maximum dipole moment.  
 B) Power radiated is directly proportional to the fourth power of frequency.  
 C) Maximum radiation is emitted orthogonal to the dipole.  
 D) Power radiated is inversely proportional to radial distance.

49. The electric field produced by an infinite line of uniform charge density  $\lambda$  is
- |                               |                               |
|-------------------------------|-------------------------------|
| A) $\lambda/2\pi\epsilon_0 r$ | B) $\lambda/4\pi\epsilon_0 r$ |
| C) $\lambda/\epsilon_0 r$     | D) $\infty$                   |
50. When a magnetic material is subjected to an external magnetising field, its ability to get magnetised is described in terms of
- |                          |                            |
|--------------------------|----------------------------|
| A) Magnetic permeability | B) Magnetic susceptibility |
| C) Magnetic viscosity    | D) Magnetic resonance      |

x-x-x



## Ph.D. Entrance Test – 2014

**Subject : Statistics**

**Paper-I**

**Important:** Please consult your Admit Card/Roll No. slip before filling your Roll Number on the Test Booklet and Answer Sheet.

Roll No.

*In Figure*

*In Words*

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O.M.R. Answer Sheet Serial No.

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*Signature of the Candidate* \_\_\_\_\_

**Time: 60 minutes**

**Number of Questions: 50**

**Maximum Marks : 50**

### **INSTRUCTIONS**

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## PAPER-I (OBJECTIVE TYPE/MULTIPLE CHOICE)

- A national achievement test is administered annually to 3rd graders. The test has a mean score of 100 and a standard deviation of 15. If Jane's z-score is 1.20, what was her score on the test?

(A) 82  
(B) 88  
(C) 118  
(D) 112
- Let If  $X_1, \dots, X_n$  are independent random variables,  $X_i$  having an exponential distribution with parameter  $\theta_i$ ,  $i = 1, \dots, n$ , then  $Z = \min(X_1, \dots, X_n)$  has:

(A) Poisson distribution with parameter  $\sum_{i=1}^n \theta_i$   
(B) Exponential distribution with parameter  $\sum_{i=1}^n \theta_i$   
(C) Poisson distribution with parameter  $\sum_{i=1}^n \frac{\theta_i}{2}$   
(D) Exponential distribution with parameter  $\sum_{i=1}^n \frac{\theta_i}{2}$
- If the regression of y on x is perfectly linear then the variance of regression estimate is:

(A) zero  
(B) one  
(C) Between zero and one  
(D) Greater than one
- Two unbiased dice are thrown. Find the conditional probability that two fives occur if it is known that the total is divisible by 5 ?

(A)  $\frac{7}{36}$   
(B)  $\frac{7}{12}$   
(C)  $\frac{1}{36}$   
(D)  $\frac{1}{7}$
- If  $\underline{X}$  is  $N_p(\underline{\mu}, \Sigma)$  and  $\Sigma$  is non-singular, then  $(\underline{X} - \underline{\mu})' \Sigma^{-1} (\underline{X} - \underline{\mu})$  is distributed as:

(A)  $\chi_p^2$   
(B)  $\chi_{2p}^2$   
(C) Wishart  $W(\Sigma, p)$   
(D) Hotelling  $T^2$  with p degrees of freedom

6. The Graph of a negative binomial distribution is:
- (A) Positively skewed and mesokurtic
  - (B) Positively skewed and leptokurtic
  - (C) Negatively skewed and leptokurtic
  - (D) Negatively skewed and platykurtic.
7. Suppose that among six bolts two are shorter than a specified length. If two bolts are chosen at random, what is the probability that the two short bolts are picked?
- (A)  $\frac{1}{6}$
  - (B)  $\frac{1}{15}$
  - (C)  $\frac{2}{15}$
  - (D)  $\frac{1}{3}$
8. If  $T$  is an unbiased and consistent estimator of  $\theta$  then for  $\theta^2, T^2$  is
- (A) Unbiased and consistent
  - (B) Unbiased and inconsistent
  - (C) Biased and inconsistent
  - (D) Biased and consistent
9. In a sign test, if  $r$  is the number of plus signs and  $s$  is the number of minus signs, then the distribution of  $r$  given  $r + s$  is:
- (A) Binomial
  - (B) Poisson
  - (C) Normal
  - (D) Negative binomial
10. Let  $\hat{\theta}$  be an estimate of  $\theta$  based on a sample of size  $n$ .  $\lim_{n \rightarrow \infty} E(\hat{\theta}) = \theta$  and if  $\lim_{n \rightarrow \infty} V(\hat{\theta}) = 0$ , then  $\hat{\theta}$  is:
- (A) M.L. E. of  $\theta$
  - (B) Unbiased estimate of  $\theta$
  - (C) Best linear unbiased estimate of  $\theta$
  - (D) Consistent estimate of  $\theta$
11. Let  $X_1, X_2$  be independent random variables each having geometric distribution  $q^x p, x = 0, 1, 2, \dots$  the conditional distribution of  $X_1$  given  $X_1 + X_2$  is
- (A) Geometric
  - (B) Exponential
  - (C) Rectangular
  - (D) Binomial

12. The maximum likelihood estimates are always
- Unbiased and consistent
  - Unbiased and inconsistent
  - Consistent and invariant
  - Invariant and unbiased
13. If  $X$  and  $Y$  are independent gamma variates with parameters  $l$  and  $m$  respectively then the distribution of  $\frac{X}{X+Y}$  follows
- $\chi^2$  with  $(l+m)$  d.f.
  - $\beta_1(l, m)$
  - $\beta_2(l, m)$
  - $F(l, m)$
14. For any  $n$  events  $A_1, A_2, \dots, A_n$ , the inequality  $P(\bigcup_{i=1}^n A_i) \leq \sum_{i=1}^n P(A_i)$  is known as:
- Bonferroni inequality
  - Boole's inequality
  - Blackwell inequality
  - Birnbaum inequality
15. If  $\underline{X} = (X_1, X_2)'$  and the marginal distributions of  $X_1$  and  $X_2$  are both univariate normal, then  $\underline{X}$  has a bivariate normal distribution iff
- $X_1 + X_2$  is univariate normal
  - $X_1 - X_2$  is univariate normal
  - $l_1 X_1 + l_2 X_2$  is univariate normal for all real  $l_1$  and  $l_2$
  - $l_1 X_1 - l_2 X_2$  is univariate normal for all real  $l_1$  and  $l_2$
16. Let  $\underline{X} \sim N(\underline{\mu}, \Sigma)$ . Then the Characteristic Function of  $Z = D \underline{X}$  for every real vector  $\underline{t}$  is:
- $e^{i \underline{t}'(D \underline{\mu}) - \frac{1}{2} \underline{t}' D \Sigma D \underline{t}}$
  - $e^{i \underline{t}'(D \underline{\mu}) - \frac{1}{2} \underline{t}' (D \Sigma D') \underline{t}}$
  - $e^{i \underline{t}' \underline{\mu} - \frac{1}{2} \underline{t}' \Sigma \underline{t}}$
  - $e^{i \underline{t}' \underline{\mu} - \frac{1}{2} \underline{t}' D \Sigma \underline{t}}$
17. Let  $C_p$  denote the process capability Ratio  $C_p = \frac{USL - LSL}{6\sigma}$ . Then  $C_p > 1$  it implies
- The process uses up more than 100% of the tolerance band.
  - The process uses much less than 100% of the tolerance band
  - The process uses up all the tolerance band
  - The process uses more than 200% of the tolerance band.
- where  $L$  = width of the central limits &  $0 < \lambda \leq 1$

18. Let  $X_1, \dots, X_n$  ( $N > p$ ) be independently distributed, each according to  $N(\underline{\mu}, \underline{\Sigma})$ . Then

the density of  $A = \sum_{\alpha=0}^N (\underline{X}_\alpha - \underline{\bar{X}})(\underline{X}_\alpha - \underline{\bar{X}})^T$  is

- (A)  $F(n, N)$
- (B)  $N\left(\underline{\mu}, \frac{\underline{\Sigma}}{n}\right)$
- (C) Wishart  $W(\underline{\Sigma}, n)$
- (D)  $\chi^2(n)$ , where  $n = N-1, \dots$

19. What is one of the distinctions between a population parameter and a sample statistic?

- (A) A population parameter is only based on conceptual measurements, but a sample statistic is based on a combination of real and conceptual measurements.
- (B) A sample statistic changes each time you try to measure it, but a population parameter remains fixed.
- (C) A population parameter changes each time you try to measure it, but a sample statistic remains fixed across samples.
- (D) The true value of a sample statistic can never be known but the true value of a population parameter can be known

20. Identify the correct answer

- (A) The type-A OC always lie below the type -B OC curve
- (B) The Type-A OC curve will always lie above the type -B OC curve.
- (C) The type -A OC curve will always cross the type -B OC curve from above
- (D) The Type-A OC curve will always cross the type-B OC curve from below

21. The necessary condition for the BIBD with parameters  $(v, r, b, k)$  with  $v$  even to be SBIBD is that

- (A)  $(r - k)$  must be a perfect square
- (B)  $(r - \lambda)$  must be a perfect square
- (C)  $(k - \lambda)$  must be a perfect square
- (D)  $(N - \lambda)$  must be a perfect square

where  $N$  is the incidence matrix of BIBD and  $\lambda$  is the inner product of any two rows of  $N$ .

22. Two contrasts of  $K$  - treatment means  $t_i, i = 1 - k$ , viz  $\sum_{i=1}^k c_i t_i, \sum_{i=1}^k c_i = 0$  &  $\sum_{i=1}^k d_i t_i, \sum_{i=1}^k d_i = 0$  are said to be orthogonal if

$$(A) \quad \sum_{i=1}^k \frac{c_i}{d_i} = 0$$

$$(B) \quad \sum_{i=1}^k (c_i - d_i) = 0$$

$$(C) \quad \sum_{i=1}^k c_i d_i = 0$$

$$(D) \quad \sum_{i=1}^k (c_i + d_i) = 0$$

23. In case of  $2^3$  factorial experiment with one replicate, the treatment

Block 1	Block 2
1	(a)
(ab)	(b)
(ac)	(c)
(bc)	(abc)

- (A) ABC is confounded  
 (B) AC is confounded  
 (C) AB is confounded  
 (D) BC is confounded

24. Let  $S$  be a  $p \times p$  sample covariance matrix with  $n$  degrees of freedom. Then  $\sqrt{n} \left( \frac{|S|}{|\Sigma|} - 1 \right)$  is

asymptotically normally distributed with

- (A) mean 1 and variance  $2p$   
 (B) mean 0 and variance  $2p$   
 (C) mean 1 and variance  $\sqrt{2p}$   
 (D) mean 1 and variance  $\sqrt{2p}$

25. Suppose you have the following information about the cdf of a random variable  $X$ , which takes one of 4 possible values:

Value of $X$	1	2	3	4
Cdf	0.25	0.4	0.8	1

Which of the following is true?

- (A)  $\Pr(X = 2) = 0.4$   
 (B)  $E(X) = 2.5$   
 (C)  $\Pr(X = 4) = 0.2$   
 (D) all of the above
26. If  $r_{12} = 0.80$ ,  $r_{13} = -0.40$  and  $r_{23} = -0.56$ , where  $r_{ij}$  denotes the correlation coefficient between  $X_i$  and  $X_j$  for  $i, j = 1, 2, 3$ . Then  $r_{12.3}$ , the partial correlation coefficient is given by  
 (A) 0.96  
 (B) 0.42  
 (C) 0.65  
 (D) 0.75
27. Let  $y$  be the variable of interest and  $x$  be an ancillary variable, then the ratio estimator  $\bar{y}_R$  will be superior than the ordinary estimator  $\bar{y}$  if

(A)  $\rho > \frac{1}{2} \frac{c_x}{c_y}$

(B)  $\rho < \frac{1}{2} \frac{c_x}{c_y}$

(C)  $\rho > \frac{c_x}{2 c_y}$

(D)  $\rho < \frac{c_x}{2 c_y}$

where  $\rho$  : correlation between  $x$  and  $y$  and  $c_x$  &  $c_y$  : coeff. of variation for  $x$  and  $y$  resp.

28. In sampling  $nM$  units from the population of  $NM$  units by simple random sampling, the variance of the sample mean is given by  $V(\bar{Y}_{srs})$  as

(A)  $\left(\frac{1}{nM} - \frac{1}{NM}\right)s^2$

(B)  $\left(\frac{1}{nM} + \frac{1}{NM}\right)s^2$

(C)  $\frac{1}{nMs^2}$

(D)  $\frac{s^2}{nM}$

where  $s^2 = \frac{1}{NM-1} \sum_{i=1}^N \sum_{j=1}^M (Y_{ij} - \bar{Y})^2$

29. In case of  $\bar{X}$  Chart. The average run length ARL is given by

(A)  $\beta(1-\beta)$

(B)  $\frac{1}{(1-\beta)^2}$

(C)  $\beta(1-\beta)^2$

(D)  $\frac{1}{1-\beta}$

where  $\beta$  is the probability of not detecting a shift in the mean in first subsequent sample.

30. In case of linear programming, if either the primal or the dual problem has an unbounded objective function value, then the other problem has

(A) unbounded solution

(B) no feasible solution

(C) multiple solutions

(D) unique feasible solution

31. If the covariance between two random variables  $X$  and  $Y$  is zero then

(A)  $X$  and  $Y$  are independent

(B) Knowing the value of  $X$  provides no information about the value of  $Y$

(C)  $E(X) = E(Y) = 0$

(D) none of the above



32. Let  $X$  be a binomial variate with mean 2 and variance 1. Then the probability that  $X$  takes value at least 1 is
- (A)  $\frac{2}{3}$   
 (B)  $\frac{4}{15}$   
 (C)  $\frac{7}{8}$   
 (D)  $\frac{15}{16}$
33. Suppose  $[L(X), U(X)]$  is a 95% confidence interval for a population mean. Which of the following is true?
- (A)  $P[L(X) \leq \bar{X} \leq U(X)] = 0.95$   
 (B)  $P[L(X) \leq \bar{X} \leq U(X)] = 0.05$   
 (C)  $P[L(X) \leq \mu \leq U(X)] = 0.95$   
 (D)  $P[L(X) \leq \mu \leq U(X)] = 0.05$
34. Let  $X_1, \dots, X_n$  ( $N > p$ ) be independently distributed, each according to  $N(\underline{\mu}, \underline{\Sigma})$ . Then the density of  $A = \sum_{\alpha=0}^N (X_{d\alpha} - \bar{X})(X_{d\alpha} - \bar{X})'$  is
- (A)  $F(n, N)$   
 (B)  $N\left(\underline{\mu}, \frac{\underline{\Sigma}}{n}\right)$   
 (C) Wishart  $W(\underline{\Sigma}, n)$   
 (D)  $\chi^2(n)$ , where  $n = N-1, \dots$
35. In interpreting a boxplot of a data set we note that the median is to the left of the center of the box and the right line is longer than the left line. We can conclude that
- (A) the data is symmetric  
 (B) skewness or symmetry cannot be determined by a box plot  
 (C) the data is skewed right  
 (D) the data is skewed left
36. A random sample of 1000 people was taken. Four hundred fifty of the people in the sample favored Candidate A. The 95% confidence interval for the true proportion of people who favors Candidate A is
- (A) 0.419 to 0.481  
 (B) 0.40 to 0.50  
 (C) 0.45 to 0.55  
 (D) 1.645 to 1.96

37. A simple random sample of 100 observations was taken from a large population. The sample mean and the standard deviation were determined to be 80 and 12 respectively. The standard error of the mean is

- (A) 1.20
- (B) 0.12
- (C) 8.00
- (D) 0.80

38. In a  $\chi^2$  test of independence, with  $m$  rows and  $n$  columns in the contingency table, the number of degrees of freedom associated with the test statistic is

- (A)  $mn+1$
- (B)  $mn-1$
- (C)  $mn-m-n+1$
- (D)  $mn-m-n-1$

39. In the past, the mean running time for a certain type of radio battery has been 9.6 hours. The manufacturer has introduced a change in the production method and wants to perform a hypothesis test to determine whether the mean running time has changed as a result. The null ( $H_0$ ) and alternative ( $H_1$ ) hypotheses are

- (A)  $H_0: \mu \geq 9.6$  hours;  $H_1: \mu = 9.6$  hours
- (B)  $H_0: \mu > 9.6$  hours;  $H_1: \mu > 9.6$  hours
- (C)  $H_0: \mu \neq 9.6$  hours;  $H_1: \mu = 9.6$  hours
- (D)  $H_0: \mu < 9.6$  hours;  $H_1: \mu > 9.6$  hours

40. Which one of these statistics is unaffected by outliers?

- (A) Interquartile Range
- (B) Mean
- (C) Range
- (D) Standard deviation

41. Let  $r$  be the observed correlation coefficient in a sample of  $n$  pairs of observations from a bivariate normal population, then to test the null hypothesis, that the population correlation coefficient is zero, where d.f = degrees of freedom, the test statistic to be used is:

- (A)  $t = \frac{r}{\sqrt{1-r^2}} \sqrt{n-1} \sim t_{(n-1)} d.f$
- (B)  $t = \frac{r}{\sqrt{1-r^2}} \sqrt{n-2} \sim t_{(n-2)} d.f$
- (C)  $t = \frac{r}{\sqrt{n-2}} \sqrt{1-r^2} \sim t_{(n-2)} d.f$
- (D)  $t = \frac{r}{\sqrt{1-r^2}} \sqrt{n-2} \sim t_{(n-2)} d.f$

42. In Multivariate analysis, first canonical variates is a linear combination of variates having

- (A) Minimum variance
- (B) Maximum variance
- (C) Minimum correlation
- (D) Maximum correlation

43. Let  $(x_i, y_i)$  be the  $n$  pair of values of  $x$  and  $y$ , then how many lines can pass through the plot of  $(x_i, y_i)$ 's ?
- (A) One line  
 (B) Two lines  
 (C)  $n$  lines  
 (D) More than  $n$  lines
44. If  $T$  is an unbiased and consistent estimator of  $\theta$  then for  $\theta^2, T^2$  is
- (A) Unbiased and consistent  
 (B) Unbiased and inconsistent  
 (C) Biased and inconsistent  
 (D) Biased and consistent
45. If in a block the number of experimental units or plots is smaller than the number of treatments, then the design so constituted is called
- (A) CRD  
 (B) Orthogonal Design  
 (C) Connected Design  
 (D) Incomplete Block Design
46. The Sequence  $\{X_n\}$  converges almost surely to a r.v.  $X$  if
- (A)  $P\{\lim_{n \rightarrow \infty} X_n = X\} = 1$   
 (B)  $P\{\lim_{n \rightarrow \infty} X_n = X\} = 0$   
 (C)  $\lim_{n \rightarrow \infty} P\{|X_n - X| > \epsilon\} = 0$  for every  $\epsilon > 0$   
 (D)  $\lim_{n \rightarrow \infty} P\{|X_n - X| < \epsilon\} = 0$  for every  $\epsilon > 0$
47. In case of CRD, where  $v$  treatments are applied to  $n$  experimental units such that  $i^{\text{th}}$  unit is replicated  $r_i$  times, the variance of treatment contrasts  $l't$  is given by:
- (A)  $\sigma^2 \left( \frac{1}{r_i} - \frac{1}{r_j} \right)$   
 (B)  $\sigma^2 \left( \frac{1}{r_i^2} - \frac{1}{r_j^2} \right)$   
 (C)  $\sigma^2 \left( \frac{1}{r_i} + \frac{1}{r_j} - 2r_i r_j \right)$   
 (D)  $\sigma^2 \left( \frac{1}{r_i} + \frac{1}{r_j} \right)$
48. The diameter, say  $X$ , of an electric cable, is assumed to be a continuous r.v. with p.d.f.:  $f(x) = 6x(1-x); 0 < x < 1$  then  $P\left(X \leq \frac{1}{2} \mid \frac{1}{3} \leq X \leq \frac{2}{3}\right)$  is
- (A)  $\frac{1}{26}$   
 (B)  $\frac{11}{26}$   
 (C)  $\frac{15}{26}$   
 (D)  $\frac{13}{27}$

49. If  $X \sim B(n, p)$ , then  $E\left(\frac{X}{n} - p\right)^2$  is

- (A)  $\frac{q}{n}$
- (B)  $pq$
- (C)  $npq$
- (D)  $\frac{pq}{n}$

50. Given a system of  $m$  simultaneous linear equations in  $n$  unknown ( $m < n$ ). The number of basic variables will be

- (A)  $m$
- (B)  $n$
- (C)  $n - m$
- (D)  $n + m$