

# CET (PG)-2015

Sr. No. :

248171

## Question Booklet Series : A

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

Roll No.

*In Figures*

*In Words*

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

O.M.R. Answer Sheet Serial No.

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

Signature of the Candidate :

**Subject : M.Sc. (Two Year Course)-Human Genomics**

Time : 90 minutes

Number of Questions : 75

Maximum Marks : 75

**DO NOT OPEN THE SEAL ON THE BOOKLET UNTIL ASKED TO DO SO**

### 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 Subject and Series Code 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. To open the Question Booklet remove the paper seal gently when asked to do so.
5. Please check that this Question Booklet contains 75 questions. In case of any discrepancy, inform the Assistant Superintendent within 10 minutes of the start of test.
6. Each question has four alternative answers (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**.
7. 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.
8. Darken the bubbles in the OMR Answer Sheet according to the Serial No. of the questions given in the Question Booklet.
9. Negative marking will be adopted for evaluation i.e., 1/4th of the marks of the question will be deducted for each wrong answer. A wrong answer means incorrect answer or wrong filling of bubble.
10. For calculations, use of simple log tables is permitted. Borrowing of log tables and any other material is not allowed.
11. For rough work only the sheets marked "**Rough Work**" at the end of the Question Booklet be used.
12. 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.**
13. After the test, hand over the Question Booklet and the Answer Sheet to the Assistant Superintendent on duty.
14. 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.
15. 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.
16. **Telecommunication equipment such as pager, cellular phone, wireless, scanner, etc., is not permitted inside the examination hall. Use of calculator is not allowed.**

SEAL

1. **Change in phenotype of biosphere brought about by natural selection is good example of :**  
(A) Greenhouse effect (B) Industrial melanism  
(C) Phenocopy (D) Symbiosis
2. **The frequency of chromosome based syndromes in children is known to increase sharply with :**  
(A) Increase in age of mother past 35 years (B) Increase in age of father past 35 years  
(C) Increase in age of sibs (D) Increase in age of relatives
3. **Who is the father of genetics ?**  
(A) G.G Mendel (B) J. P. Morgan  
(C) G. J. Mendel (D) Hugo de Vries
4. **Meselson and Stahl demonstrated that :**  
(A) One gene codes for one enzyme (B) Genetic material of bacteriophage is DNA  
(C) Genetic information of TMV is stored in RNA (D) DNA replication is semiconservative
5. **If two or more events are independent, the chance that they will occur together is :**  
(A) The sum of their separate probabilities (B) The product of their separate probabilities  
(C) Negligible (D) 0.5
6. **Recessive genes are difficult to follow generations after generations because they :**  
(A) Remain hidden by their dominant alleles (B) Are rare  
(C) Get mutated (D) Are expressionless
7. **In a typical mammalian cell cycle with 24 hours generation time, mitosis completes in :**  
(A) 4 hrs (B) 9 hrs  
(C) 1 hr (D) 10 hrs
8. **Defective HPRT causes :**  
(A) Renal dysplasia (B) Lesch Nyhan Syndrome  
(C) Angelman's Syndrome (D) Down Syndrome
9. **Who gave the survival of the fittest theory ?**  
(A) Lamarck (B) Dawson  
(C) Darwin (D) Aristotle

10. The earth's inner most core is :
- (A) Solid (B) Liquid  
(C) Gaseous (D) Vacuum
11. X-rays can be characterized by :
- (A) Short wavelength, high frequency (B) Long wavelength, low frequency  
(C)  $10^3$  wavelength (D)  $10^1$  frequency
12. First science city in India was built in :
- (A) Pune (B) Hyderabad  
(C) New Delhi (D) Kolkata
13. Red Ribbon Express is related to :
- (A) Awareness of Red Cross Society (B) Awareness about high speed bullet train  
(C) Awareness about HIV/AIDS (D) Awareness about single girl child
14. MDR has developed due to :
- (A) Indiscriminate use of drugs (B) Adaptation of microorganism  
(C) Partial course of prescribed drug (D) All of the above
15. Titan is associated with :
- (A) Jupiter (B) Saturn  
(C) Uranus (D) Neptune
16. The wavelength of visible light falls between :
- (A) 280-700 nm (B) 380-750 nm  
(C) 450-800 nm (D) 300-900 nm
17. One light year is a measure of :
- (A) Time (B) Distance  
(C) Velocity (D) Momentum
18. Our solar system was created :
- (A) 13.7 billion yrs ago (B) 11.2 billion yrs ago  
(C) 4.5 billion yrs ago (D) 2.78 billion yrs ago

19. Quorum sensing is helpful in :
- (A) Energy calculation (B) Correlation of population (microbial) density  
(C) Measuring radiations (D) Identification of isotopes
20. Ratio between resolving power of eye to resolving power of microscope is referred to as :
- (A) Focussing (B) Magnification  
(C) Refraction (D) Diffraction
21. A normal human body has a temperature of :
- (A) 98.6°C (B) 37°C  
(C) 32°C (D) 99.2°C
22. A homozygous Rh-positive man married a homozygous Rh-negative woman. Their first child was normal, what would be the prediction for future child's phenotype :
- (A) Normal (B) Haemolytic anaemia  
(C) Could be (A) or (B) (D) Fetal abortion
23. The closest distance at which a human naked eye can focus is :
- (A) 35 cm (B) 25 cm  
(C) 35 mm (D) 25 mm
24. Choose the odd one out :
- (A) Micro computer (B) Mini computer  
(C) Super computer (D) Digital computer
25. The computer that is not considered as a portable computer is :
- (A) Laptop computer (B) Notebook computer  
(C) Mini computer (D) Tablet
26. The unit that performs the arithmetical and logical operations on the stored numbers is known as \_\_\_\_\_ :
- (A) Arithmetic Logic Unit (B) Control Unit  
(C) Memory Unit (D) Both (A) and (B)
27. The \_\_\_\_\_ is the 'administrative' section of the computer system.
- (A) Input Unit (B) Output Unit  
(C) Memory Unit (D) Central Processing Unit

28. The number system on which the modern computers operate :
- (A) Decimal number system (B) Octal number system  
(C) Binary number system (D) Hexadecimal number system
29. The complement of the binary number 11001011 is :
- (A) 10101010 (B) 00110100  
(C) 00110101 (D) 00101100
30. If spermatogenesis is normal and all cells survive, how many sperm will result from 50 spermatids ?
- (A) 50 (B) 100  
(C) 200 (D) 250
31. A man produces following kinds of sperm in equal proportions: AB, Ab, aB & ab. What is his genotype with reference to the genes specified ?
- (A) AA<sup>bb</sup> (B) aa<sup>BB</sup>  
(C) Aa<sup>Bb</sup> (D) Aabb
32. How many sex chromatin bodies are expected to occur in cell nuclei with XXY chromosomes arrangement ?
- (A) Zero (B) One  
(C) Two (D) Three
33. Eukaryotic chromosomes are metabolically most active during :
- (A) Metaphase (B) Anaphase  
(C) Telophase (D) Interphase
34. Mutations that produce chain termination triplets within genes are known as :
- (A) Missense (B) Nonsense  
(C) Sense (D) Deletion
35. Which among the following is odd one out: UAA, UAG, UGA & UGG ?
- (A) UAA (B) UAG  
(C) UGA (D) UGG
36. Nuclear sizes are expressed in a unit named :
- (A) Fermi (B) Angstrom  
(C) Newton (D) Tesla

37. Sound travels at the fastest speed in :
- (A) Steel (B) Water  
(C) Air (D) Vacuum
38. The "NuSTAR" is a space based X-ray telescope designed by NASA to study :
- (A) Comets (B) Black Holes  
(C) Asteroids (D) Dwarf Planets
39. Which is the largest part of the human brain ?
- (A) Cerebrum (B) Cerebellum  
(C) Hypothalamus (D) Both (A) & (B)
40. Sun's energy is produced by :
- (A) Nuclear fission (B) Nuclear fusion  
(C) Conversion of Helium to Carbon (D) Breaking of hydrogen bonds
41. Haemophilia, a human disease is caused by :
- (A) Bacterial Infection (B) Fungal Infection  
(C) Mutant gene (D) Viral Infection
42. The disease Sickle cell anaemia, is caused by :
- (A) Iron deficiency (B) Malaria Infection  
(C) Poor hygiene (D) Mutation in gene
43. Test cross involves :
- (A) Crossing between two genotypes with dominant trait  
(B) Crossing between two genotypes with recessive trait  
(C) Crossing between two F1 hybrids  
(D) Crossing the F1 hybrid with a double recessive genotype
44. Genetic variation can be introduced into bacteria by all of the following method except :
- (A) Transduction (B) Mutation  
(C) Transformation (D) DNA amplification
45. Actinomycin D is a inhibitor of :
- (A) Replication (B) Transcription  
(C) Translation (D) Transformation

46. Which mutation is caused by Acridine Orange ?
- (A) Missense mutation (B) Nonsense mutation  
(C) Duplication (D) Frameshift mutation
47. Global Warming is mainly due to :
- (A) Less of rain (B) Absorption of IR by ozone  
(C) Industrial revolution (D) Less of forest
48. Identify the point mutation in DNA: A to G :
- (A) Transition (B) Transversion  
(C) Frameshift (D) Nonsense
49. *Caenorhabditis elegans* is a :
- (A) Fungi (B) Bacteria  
(C) Worm (D) Fruitfly
50. Which one of the following belong to amphibian class ?
- (A) *S.cerevisiae* (B) *C.elegans*  
(C) *X.laevis* (D) *E.coli*
51. A nucleoside is composed of :
- (A) base + a sugar (B) base + a sugar + phosphate  
(C) base + a phosphate (D) 2 base + sugar
52. The two strands in a DNA double strand is joined by :
- (A) Co-valent bond (B) Hydrogen bond  
(C) Ionic bond (D) Phosphodiester bond
53. The basic repeating units of a DNA molecule is :
- (A) Nucleoside (B) Nucleotide  
(C) Histones (D) Amino acids
54. Freon is chemically referred as :
- (A) Methyl chloride (B) Chlorofluoro carbon  
(C) Tetrabromobenzene (D) Chloroform

55. A short length of DNA molecule has 80 thymine and 80 guanine bases. The total number of nucleotide in the DNA fragment is :
- (A) 160 (B) 40  
(C) 320 (D) 640
56. The primary structure of a protein is primarily maintained by :
- (A) Peptide bond (B) Hydrogen bond  
(C) Ionic bond (D) Hydrophobic interactions
57. RNA molecules differ from DNA molecules in all but which one of the following respects ?
- (A) Kind of pyrimidines (B) Kind of purines  
(C) Type of sugar (D) Number of strands per molecule
58. Solution with pH = 5 is \_\_\_\_\_ than a solution with pH = 7.
- (A) 2 times more basic (B) 10 times more basic  
(C) 10 times more acidic (D) 100 times more acidic
59. Stereo chemical configuration of all  $\alpha$ -amino acids derived from proteins is :
- (A) L (B) D  
(C) L and D (D) Z
60. DNA replication takes place in which direction ?
- (A) 3' to 5' (B) 5' to 3'  
(C) Randomly (D) Vary from organism to organism
61. Molecules in which the atoms are held together by \_\_\_\_\_ bonds have the strongest chemical linkages.
- (A) Non-covalent (B) Covalent  
(C) Ionic (D) Hydrogen
62. Female gametophyte of angiosperm is :
- (A) 7 celled (B) 8 celled  
(C) 11 celled (D) 5 celled
63. Which of the following helps in ascent of sap ?
- (A) Root pressure (B) Transpiration  
(C) Capillarity (D) All of these

64. Bryophytes do not possess :
- (A) Vascular tissue (B) Gametophyte  
(C) Alternation of generation (D) Spores
65. The plants which can withstand narrow range of temperature tolerance are called :
- (A) Stenothermal (B) Eurythermal  
(C) Mesothermal (D) Monothermal
66. Biological oxygen demand is a measure of :
- (A) Industrial wastes poured into water bodies  
(B) Extent to which water is polluted with organic compound  
(C) Amount of carbon monoxide inseparably combined with haemoglobin  
(D) Amount of oxygen needed by green plants during night
67. Haemocoel is found in :
- (A) Hydra and Aurelia (B) Taenia and Ascaris  
(C) Cockroach and Pila (D) Herdmania and Balanoglossus
68. Which one of following is a correct matching pair ?
- (A) Lubb- sharp closure of AV valves at the beginning of ventricular systole  
(B) Dub- sudden opening of semilunar valves at the beginning of ventricular diastole  
(C) Pulsation of radial artery valves in the blood vessels  
(D) Purkinje fibers- initiation of heart beat
69. The end product of ornithine cycle is :
- (A) Urea (B) Uric acid  
(C)  $\text{NH}_3$  (D)  $\text{CO}_2$
70. A person is wearing spectacles with concave lenses for correcting vision. While not using the glasses, the image of a distant object in his case will be formed :
- (A) On the blind spot (B) Behind the retina  
(C) In front of retina (D) On yellow spot

71. Which of the following statement regarding glucagon is false ?
- (A) It is secreted by alpha cells of langerhans
  - (B) It acts antagonistically to insulin
  - (C) It decreases blood sugar level
  - (D) The gland responsible for its secretion is heterocrine gland
72. Montreal Protocol is associated with :
- (A) Global warming
  - (B) Industrial pollution
  - (C) Tiger conservation
  - (D) Conservation of fossil fuel
73. Study of interaction of electromagnetic radiation with matter is :
- (A) TEM
  - (B) Electrophoresis
  - (C) Spectroscopy
  - (D) Endoscopy
74. Antibiotics help in killing :
- (A) Viral infection
  - (B) Fungal infection
  - (C) Bacterial infection
  - (D) Algal infection
75. Vienna Convention deals with :
- (A) Ozone layer depletion
  - (B) Nomenclature for refrigerants
  - (C) Nomenclature Enzymes
  - (D) Mutation detection