COMMON P. G. ENTRANCE TEST – 2024 (CPET-2024)

Test Booklet No. : 01699

Subject Code : 30

Hall Ticket No. :

Subject : MICROBIOLOGY

TEST BOOKLET

*Time Allowed : **60** Minutes*

*Full Marks : **80***

: INSTRUCTIONS TO CANDIDATES :

1. The Test Booklet contains **15** pages including the cover page and **80** (Question Nos. 1 to 80) multiple choice questions.
2. DO NOT break open the seal of the Test Booklet until the invigilator instructs to do so.
3. The candidates must check discrepancy, if any (like up-printed or torn or missing pages or missing questions) in the Test Booklet immediately after breaking the seal of the Test Booklet. If detected, the invigilator may be requested to replace the same.
4. Candidates are required to fill up and darken the **Hall Ticket No., Test Booklet Serial No.** and OMR Answer Sheet Serial No. in attendance sheet carefully. Wrongly filled in OMR Answer Sheet is liable for rejection.
5. Each question has four choices / answers marked (A), (B), (C), (D). Candidate has to select the most appropriate choice / answer to each question and darken the oval completely against the question number provided in the OMR Answer Sheet.
6. Indicate only one choice / answer from the options provided by darkening the appropriate oval in the OMR Answer Sheet. More than one response to a question shall be treated as a wrong answer.
7. Use only **Black Ball Point Pen** for darkening the oval for answering.
8. All the questions are compulsory and they carry equal marks. The total marks scored by a candidate depends on the number of correct choices / answers darkened in the OMR Answer Sheet. There will be no negative marking for wrong answers.
9. No candidate shall be allowed to leave the Examination Hall / Room till all OMR Answer Sheets have been collected by the invigilator.
10. On completion of the entrance test, the original OMR Answer Sheet be handed over to the invigilator. Candidates are allowed to take the second copy of the OMR Answer Sheet along with the used Test Booklet for reference.
11. Candidates are not allowed to carry any personal belongings including electronic devices such as scientific calculator, cell phones, headphones, earbuds, or any other type of devices that allow communication of any kind inside the Examination Room / Hall.
12. The candidates are advised not to scribble or make any mark on the OMR Answer Sheet except marking the answers at the appropriate places and filling up the details required. Rough work, if any, may be done in the blank sheet(s) provided at the end of the Test Booklet.
13. Any malpractice / use of unfair means will lead to your disqualification from the entrance test / admission process and may also lead to appropriate legal action as deemed fit.

DO NOT OPEN THIS TEST BOOKLET UNTIL YOU ARE ASKED TO DO SO

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1. Which of the following is the technique used for the quantification and detection of DNA ?

(A) Northern blotting
(B) Southern blotting
(C) Western blotting
(D) Dot blotting

2. In which type of chromatography, the stationary phase held in a narrow tube and the mobile phase is forced through it under pressure ?

(A) Column chromatography
(B) Planar chromatography
(C) Liquid chromatography
(D) Gas chromatography

3. Which isotope is commonly used in NMR spectroscopy ?

(A) C-12
(B) H-3
(C) C-13
(D) O-16

4. Which among the following helps us in getting a three-dimensional picture of the specimen ?

(A) Transmission Electron Microscope
(B) Scanning Electron Microscope
(C) Compound Microscope
(D) Simple Microscope

5. Name a phylogenic domain of prokaryotes consists of halophiles and extreme thermophiles :

(A) Protozoa
(B) Archaebacteria
(C) Actinomycetes
(D) Ctinorhiza

6. LUX gene is responsible for :

(A) Biolumiscence
(B) N_2 fixation
(C) Methanogenesis
(D) Nitrification

7. Which of the following acts as chemical reductant in bacterial photosynthesis ?

(A) Oxygen
(B) Water
(C) Hydrogen sulphide
(D) Ammonia

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8. The importance of ecosystem lies in :

(A) CO_2 production (B) Bacterial degradation

(C) Oxygen production (D) Flow of energy

9. Undesirable changes in food are called food :

(A) Decay (B) Fermentation

(C) Spoilage (D) Preservation

10. Name the test which is used for determination of efficiency of pasteurization :

(A) MBRT (B) Phosphatase

(C) MPN (D) IMVic

11. Name the test which is used for determination of microbial quality of milk :

(A) SPC (B) MPN

(C) MBRT (D) Phosphatase

12. Antiviral substance produced in human body is :

(A) Antibody (B) Immunogen

(C) Antigen (D) Interferon

13. HIV contain protein coat and genetic material and is horse chestnut shaped :

(A) Double stranded DNA (B) Single stranded DNA

(C) Single stranded RNA (D) Double stranded RNA

14. The process of readily counting Bacteriophages is called as :

(A) Immunoassays (B) ELISA

(C) Plaque assays (D) Tissue cell culture

15. Which types of immunoglobins are abundantly found in Foetus ?

(A) IgE (B) IgG

(C) IgM (D) IgD

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16. Humoral Immunity system is mediated by :

(A) B-cells (B) T-cells

(C) NK-cells (D) Plasma cells

17. The immune-deficiency become marked once the HIV starts destroying :

(A) Macrophages (B) T helper cells

(C) B lymphocytes (D) NK cells

18. In RIA, what component is labelled with radioactive isotope for detection ?

(A) Substrates (B) Antigen

(C) Enzymes (D) Antibodies

19. The basic Ig unit is composed of :

(A) 2 identical heavy and 2 different light chains

(B) 2 identical heavy and 2 different light chains

(C) 2 different heavy and 2 identical light chains

(D) 2 different heavy and 2 different light chains

20. An autoimmune disease is :

(A) B-lymphocyte induced (B) Haemophillia

(C) Myasthenia gravis (D) Tetanus

21. In HMP pathway, major products are :

(A) Ribulose and NADPH (B) Ribulose and NADH

(C) Ribulose and NAD^+ (D) Ribulose and ATP

22. The type of fermentation observed in yeast is :

(A) Acrylic fermentation (B) Lactic acid fermentation

(C) Pyruvic fermentation (D) Alcoholic fermentation

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23. What is the percentage of acetic acid in commercially available vinegar ?

(A) 2% (B) 4%

(C) 10% (D) 12%

24. Fermentation of glycerol wine results in :

(A) Pousse (B) Amertume

(C) Mousy flavor (D) Tourne

25. Which of this Vitamin is associated with the Coenzyme Biocytin ?

(A) Nicotinic acid (B) Thiamine

(C) Biotin (D) Pyridoxine

26. What is the binding energy ?

(A) Free energy released in the formation of enzyme-substrate interaction

(B) The energy required to form a bond

(C) The energy required to bind substrate

(D) It is the activation energy

27. Sigma factor is a part of :

(A) INA polymerase (B) RNA polymerase

(C) Nucleosome (D) Ribosome

28. Zymogen is a :

(A) Enzyme poison (B) Enzyme modulator

(C) Enzyme precursor (D) Enzyme inhibitor

29. Albinism is caused by the deficiency of which enzyme ?

(A) Phenylalanine hydroxylase (B) Streptokinase

(C) Prolidase (D) Tyrosinase

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30. In EMP pathway, the process by which ATP is formed from ADP is :

(A) Reduction
(B) Oxidative phosphorylation
(C) Substrate level phosphorylation
(D) Photo phosphorylation

31. Which of the following intermediate of Krebs cycle is utilised in formation of amino acids ?

(A) Citric acid
(B) Malic acid
(C) Isocitric acid
(D) Alpha-keto glutaric acid

32. Which of the following is produced with the combination of Apoenzyme and Coenzyme ?

(A) Holoenzyme
(B) Enzyme substrate complex
(C) Prosthetic group
(D) Enzyme product complex

33. Recovery of Ethanol is done by :

(A) Agglutination
(B) Precipitation
(C) Filtration and distillation
(D) Centrifugation

34. Total time required for streptomycin fermentation is :

(A) 2 days
(B) 40 hours
(C) 5 hours
(D) 5 days

35. Androstenedione is converted into testosterone by :

(A) Sertoli Cell
(B) Leydig Cell
(C) Epididymis
(D) Seminiferous tubule

36. Vitamin B12 is also called as :

(A) Folic acid
(B) Niacin
(C) Thiamin
(D) Cyanocobalamin

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37. Cyanide is used as a precursor for production of :

(A) Carotenoids (B) Vitamin B12

(C) Riboflavin (D) Vitamin B2

38. Who proposed the name "messenger" to the RNA which carries the message for protein synthesis ?

(A) F. Jacob and J. Monad (B) Crick and Hogland

(C) Davie (D) Wagner

39. Helix unwinding during replication is accomplished by :

(A) DNA Gyrase (B) DNA Polymerase I

(C) DNA Helicase (D) DNA Primase

40. In a Cis-Trans Test the word 'Cis' means :

(A) Cistron (B) Coupling

(C) Sister chromatids (D) Complementation

41. Lac Z gene in Lac operon express to synthesize :

(A) Beta-Galactosidase (B) Galactoside permease

(C) Acetylase (D) Repressor

42. The coding sequences on the eukaryotic genes are termed as :

(A) Introns (B) Exons

(C) Split genes (D) Interrupted gene

43. In an ecosystem, the energy flow is :

(A) Always unidirectional (B) Always bidirectional

(C) In any direction (D) Always down directional

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44. What happens when phosphorus, nitrates,and detergents in water lead to an acceleration in the growth of algae ?

(A) Extinction

(B) Eutrophication

(C) Increase in the number of fishes

(D) Increase in the number of aquatic plants

45. The one which is not considered as naturally occurring greenhouse gas is :

(A) CFCs

(B) Methane

(C) Carbon dioxide

(D) Nitrous oxide

46. Knock-knee syndrome is associated with :

(A) Mercury pollution

(B) Fluoride pollution

(C) DDT pollution

(D) Uranium pollution

47. An ecological niche is normally occupied by :

(A) A population

(B) A small community

(C) A single species

(D) A big community

48. Radioactive carbon method was introduced by :

(A) Boltwood

(B) Anderson

(C) W. F. Libby

(D) De Vries

49. Genetic drift is most likely to occur :

(A) Among migrating populations

(B) In populations which show no mutations

(C) In very large sized populations

(D) In populations which are geographically isolated

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50. Montreal Protocol is related to the :

(A) Food security
(B) Global warming
(C) Sustainable development
(D) Ozone layer depletion

51. The ratio between energy flow at different points in a food chain is known as :

(A) Ecological capacity
(B) Ecological efficiency
(C) Ecological assimilation
(D) Ecological potential

52. Denaturation is the process of :

(A) Heating between 72°C to 78°C
(B) Heating between 40°C to 60°C
(C) Heating between 90°C to 98°C
(D) Heating between 30°C to 40°C

53. Which of the following enzymes are known as molecular scissors or molecular scalpels ?

(A) DNA polymerases
(B) Hydrolases
(C) Ligases
(D) Restriction endonucleases

54. Which of the following primers are utilized in the polymerase chain reaction procedure ?

(A) Single-stranded DNA oligonucleotide
(B) Double-stranded DNA oligonucleotide
(C) Double-stranded RNA oligonucleotide
(D) Single-stranded RNA oligonucleotide

55. The concept of a split gene is that the :

(A) DNA in a gene can be splitted by deoxyribonuclease
(B) Coding sequences in many eukaryotic genes are often separated by non-coding sequences
(C) Secondary constrictions on the chromosomes gives the split appearance to genes
(D) Adjacent genes are separated from each other by spacers

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56. During cell division, mitochondria :

(A) Accumulate near the spindle
(B) Arrange themselves at the equator
(C) Migrate to terminal poles
(D) Disappear

57. Paramylum is :

(A) Nutrient polysaccharides
(B) Structural polysaccharides
(C) Starch
(D) Glycogen granules

58. Anthrax is caused by which of the following ?

(A) Virus
(B) Parasite
(C) Bacterium
(D) Fungus

59. Which of the following is used in the manufacturing of cheese ?

(A) Sulphuric acid
(B) Amylase
(C) Kinase
(D) Sodium citrate

60. Which type of DNA cleavage is done in the Maxam Gilbert method ?

(A) Edge
(B) Interstitial
(C) Base-specific
(D) Gene-specific

61. What is the main enzyme component of Sanger sequencing ?

(A) Helicase
(B) Polymerase
(C) Nuclease
(D) Gyrase

62. Which of the following is the first completed and published gene sequence ?

(A) ΦX174
(B) T4 phage
(C) M13 phage
(D) Lambda phage

63. Bacteria get resistance for aminoglycosides by :

(A) Change in character of porin
(B) Modifying enzymes
(C) Alteration of target site
(D) Degrading enzymes

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64. Enzyme asparaginase has been used in the treatment of :

(A) Acute lymphocytic leukemia

(B) Gaucher's Disease type – II

(C) Gaucher's Disease type – I

(D) Cystic Fibrosis

65. Name the process of development of an organism from female gamete/egg without involving fertilization :

(A) Polyembryony (B) Polyspermy

(C) Parthenocarpy (D) Parthenogenesis

66. In dominant epistatis ratio 9 : 3 : 3 : 1 is modified to :

(A) 9 : 7 (B) 12 : 3 : 1

(C) 12 : 4 (D) 13 : 3

67. What is the term used when the genotype of an individual is not always reflected in the phenotype ?

(A) Dominance (B) Incomplete dominance

(C) Epistasis (D) Both (A) and (B)

68. What cannot be the blood group of parents if the child's blood group is "O" ?

(A) A and O (B) B and O

(C) B and B (D) AB and O

69. Neo-Lamarckism depends upon :

(A) Mutations (B) Variations

(C) Selections (D) Both (A) and (B)

70. Antiparallel strands of a DNA molecule means that :

(A) The phosphate groups at the start of DNA strand are in opposite position

(B) One strand turns clockwise

(C) One strand turns anticlockwise

(D) The phosphate group of two DNA strands, at their ends share the same position

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71. Alzheimer's disease in humans is associated with deficiency of :

(A) Dopamine
(B) Gamma amiobutyric acid
(C) Acetylcholine
(D) Glutamic acid

72. In a mutational event, when adenine is replaced with guanine it is a case of :

(A) Transition
(B) Transversion
(C) Transcription
(D) Frameshift mutation

73. Population growth curve is sigmoid, if the growth pattern is :

(A) Accretionary
(B) Geometric
(C) Exponential
(D) Logistic

74. Lethal genes were first discovered by :

(A) Cuenot
(B) Wagner
(C) Flemming
(D) Punnet

75. The term "Basal Metabolic Rate" (BMR) refers to the :

(A) Lowest possible energy metabolism
(B) Minimum stable rate of metabolism
(C) Maximum stable rate of metabolism
(D) Maximum possible energy metabolism

76. The most recent era in geological time scale is the :

(A) Mesozoic
(B) Proterozoic
(C) Paleozoic
(D) Cenozoic

77. The upper limit of population density that can be sustained in the absence of predators and parasites defines :

(A) Carrying capacity of the environment
(B) Reproductive potential
(C) Environmental resistance
(D) Biotic potential

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78. Down's syndrome occurs due to :

(A) Sex-chromosomal abnormality
(B) Gene mutation
(C) Autosomal abnormality
(D) Entrochromosomal abnormality

79. Red Data Books are directories of endangered species compiled by :

(A) International Union for the Conservation of Nature (IUCN), Switzerland
(B) World Wild Life Fund (WWF)
(C) Bombay Natural Society (BNHS)
(D) National Museum of Natural History, (NMNH), New Delhi

80. The technique used for tracing the route and conversion of molecules in different biochemical reactions occurring in the cell is known as :

(A) Electrophoresis
(B) Autoradiography
(C) Chromatography
(D) Fractionation



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