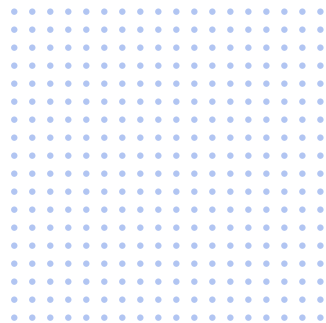




FOR KUET EXAM PREPARATION

KUET 2024 Question Paper · M.Sc. Microbiology

EXAM	YEAR	TYPE	SUBJECT
KUET	2024	Question Paper	M.Sc. Microbiology

Sr. No. 261

ENTRANCE TEST-2024

SCHOOL OF BIOLOGICAL SCIENCES

MICROBIOLOGY

Total Questions : 60
Time Allowed : 70 Minutes

Question Booklet Series

A

Roll No. :

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

Instructions for Candidates :

1. Write your Entrance Test Roll Number in the space provided at the top of this page of Question Booklet and fill up the necessary information in the spaces provided on the OMR Answer Sheet.
2. OMR Answer Sheet has an Original Copy and a Candidate's Copy glued beneath it at the top. While making entries in the Original Copy, candidate should ensure that the two copies are aligned properly so that the entries made in the Original Copy against each item are exactly copied in the Candidate's Copy.
3. All entries in the OMR Answer Sheet, including answers to questions, are to be recorded in the Original Copy only.
4. Choose the correct / most appropriate response for each question among the options A, B, C and D and darken the circle of the appropriate response completely. The incomplete darkened circle is not correctly read by the OMR Scanner and no complaint to this effect shall be entertained.
5. Use only blue/black ball point pen to darken the circle of correct/most appropriate response. In no case gel/ink pen or pencil should be used.
6. Do not darken more than one circle of options for any question. A question with more than one darkened response shall be considered wrong.
7. There will be '**Negative Marking**' for wrong answers. Each wrong answer will lead to the deduction of 0.25 marks from the total score of the candidate.
8. Only those candidates who would obtain positive score in Entrance Test Examination shall be eligible for admission.
9. Do not make any stray mark on the OMR sheet.
10. Calculators and mobiles shall not be permitted inside the examination hall.
11. Rough work, if any, should be done on the blank sheets provided with the question booklet.
12. OMR Answer Sheet must be handled carefully and it should not be folded or mutilated in which case it will not be evaluated.
13. Ensure that your OMR Answer Sheet has been signed by the Invigilator and the candidate himself/herself.
14. At the end of the examination, hand over the OMR Answer Sheet to the invigilator who will first tear off the original OMR sheet in presence of the Candidate and hand over the Candidate's Copy to the candidate.

SP-4491-A

1

[Turn over

1. The genetic material of cauliflower mosaic virus contains :
 - (A) Single stranded RNA molecules
 - (B) Double stranded RNA molecule
 - (C) Double stranded DNA molecule
 - (D) Single stranded DNA molecules
2. The term "New Systematics" was introduced by :
 - (A) Joseph Dalton Hooker (1911)
 - (B) Julian Huxley (1940)
 - (C) A. P. de Candolle (1813)
 - (D) Simpson (1961)
3. Blue-Green Algae (Class Cyanophyceae) are included in which of the following groups ?
 - (A) Fungi
 - (B) Bryophytes
 - (C) Prokaryotes
 - (D) Protista
4. Five kingdom system (R. H. Whittaker, 1969) of classification is based on :
 - (A) Structure of nucleus
 - (B) Mode of nutrition
 - (C) Structure of cell wall
 - (D) Asexual reproduction
5. The function of elementary cell body of mycoplasma :
 - (A) Respiration
 - (B) Reproduction
 - (C) Excretion
 - (D) Metabolism
6. Name the antibiotic used for the treatment of infection caused by *M. pneumoniae* :
 - (A) Rifampin
 - (B) Sulfonamides
 - (C) Tetracyclines
 - (D) Vancomycin
7. The most vital criteria for virus classification :
 - (A) Lack of metabolic machinery
 - (B) How many proteins the virus has
 - (C) Chemistry of the DNA and RNA
 - (D) The disease a virus causes
8. Identify the virus responsible for the cell death through apoptosis :
 - (A) Herpes simplex virus
 - (B) Vaccinia virus
 - (C) Rubella virus
 - (D) Myxoma virus
9. The routine method of staining and observing fungi :
 - (A) Hematoxylin and Eosin
 - (B) Lactophenol Cotton Blue (LPCB)
 - (C) Saffranine
 - (D) Lactophenol
10. In case of fungal stage of sexual reproduction joining the cytoplasm of two parent mycelia without the fusion of nuclei is known as :
 - (A) Sporulation
 - (B) Meiosis
 - (C) Plasmogamy
 - (D) Karyogamy
11. Basic structural constituent of the cell wall in the Zygomycetes and higher fungi (Ascomycetes and Basidiomycetes) is :
 - (A) Cellulose
 - (B) Chitin
 - (C) Peptidoglycan
 - (D) Glycogen

12. How many pairs of flagella does *Giardia* trophozoite possess ?
 (A) One pair
 (B) Two pairs
 (C) Three pairs
 (D) Four pairs
13. The heavy chains of human antibodies (or immunoglobulins) are located in :
 (A) Chromosome 14
 (B) Chromosome 22
 (C) Chromosome 20
 (D) Chromosome 18
14. Vaccines that are made up of a living virus or bacteria that has been modified through a process to weaken and reduce its virulence is known as :
 (A) A toxoid
 (B) Attenuated
 (C) Dormant
 (D) Virulent
15. Humoral immunity is mainly carried out by _____ / _____ and cell-mediated immunity is mainly carried out by _____.
 (A) Antibodies/phagocytes
 (B) B cells/T cells
 (C) Epitopes/antigens
 (D) T cells/B cells
16. The small site on an antigen to which a complementary antibody may specifically bind is called :
 (A) B-cell
 (B) An epitope
 (C) A hapten
 (D) T-cell
17. The basic law governing photochemical reactions, "In a photochemical reaction, each molecule of the reacting substance absorbs a single photon of radiation causing the reaction and is activated to form the products" was given by :
 (A) Lambert
 (B) Lambert-Beer
 (C) Grothus-Draper
 (D) Stark-Einstein
18. Which among the following properties is not affected by hydrogen bonding ?
 (A) Melting point
 (B) Conductivity
 (C) Boiling point
 (D) Solubility
19. What is the typical bond angle of a hydrogen bond ?
 (A) 90 degrees
 (B) It varies depending on the specific bond
 (C) 120 degrees
 (D) 180 degrees
20. In a thermodynamic process, where heat is not exchanged with the surroundings is called :
 (A) Isothermal
 (B) Adiabatic
 (C) Isobaric
 (D) Isotropic
21. Mention the example of competitive inhibition of an enzyme :
 (A) Carbonic anhydrase by carbon dioxide
 (B) Succinic dehydrogenase by malonic acid
 (C) Cytochrome oxidase by cyanide
 (D) Hexokinase by glucose-6-phosphate

22. Megaloblastic anemia is caused due to deficiency of :
 (A) Cobalamin
 (B) Pyridoxine
 (C) Niacin
 (D) Folic acid
23. Name the vitamin which has dual functions as hormone as well as pigment ?
 (A) Thiamine
 (B) Riboflavin
 (C) Retinol
 (D) Folic acid
24. Enzyme that differs in amino acid sequence but catalyzes the same reaction are :
 (A) Co-factor
 (B) Iso-enzyme
 (C) Co-enzyme
 (D) Apo-enzyme
25. The increase of rate of glycolysis in anaerobic conditions is called as :
 (A) Pasteur effect
 (B) Extinction point
 (C) Warburg effect
 (D) Compensation point
26. In human body under normal condition phenylalanine is degraded into :
 (A) Serine
 (B) Methionine
 (C) Tyrosine
 (D) Proline
27. Name the common compound shared by TCA cycle and Urea Cycle :
 (A) α - Ketoglutarate
 (B) Oxaloacetate
 (C) Fumarate
 (D) Succinyl COA
28. The rate limiting enzyme of urea cycle is :
 (A) Ornithine transcarbamoylase
 (B) Argininosuccinate lyase
 (C) Carbamoyl phosphate synthetase
 (D) Argininosuccinate synthase
29. Point mutation of a membrane protein responsible for a particular hereditary disease :
 (A) Alzheimer's disease
 (B) Hemolytic anaemia
 (C) Parkinson's disease
 (D) Anaemia
30. Function of cholesterol present in plasma membrane is to :
 (A) Enable the membrane to add hydrogen atoms to unsaturated phospholipids
 (B) Make the animal more susceptible to circulatory disorders
 (C) Enable the membrane to stay fluid more easily when cell temperature drops
 (D) Enable the membrane to remove hydrogen atoms from saturated phospholipids
31. Identify the cell recognition or the receptor biomolecules located on cell surfaces :
 (A) Transmembrane proteins
 (B) Glycoproteins
 (C) Integral proteins
 (D) Peripheral proteins
32. Mitochondrial DNA (mtDNA) is considered as one of the best marker tools, because :
 (A) Mitochondrial DNA undergo spontaneous mutation
 (B) Mitochondrial genes are specific to mtDNA
 (C) The absence of genetic recombination in Mitochondrial DNA
 (D) Mitochondrial DNA can be easily isolated

33. If a color-blind woman marries an average-visioned man, their sons will be :
- All normal visioned
 - Three-fourths color-blind and one-fourth normal
 - One-half color-blind and one-half normal
 - All color-blind
34. Cite example of incomplete dominance :
- AB blood group
 - Mouse coat colour
 - Mirabilis jalapa
 - Shape of crown in poultry
35. Which deficiency was attempted to be treated in the first patient who died during a gene therapy experiment in 1999 ?
- Chronic Granulomatous Disorder
 - Duchenne muscular dystrophy
 - Adenosine deaminase deficiency
 - Ornithine transcarbamylase
36. Transition type of gene mutation is caused when :
- GC is replaced by GC
 - AT is replaced by GC
 - GC is replaced by TA
 - AT is replaced by CG
37. Select the particular enzyme responsible for the transfer of T-DNA from the Ti plasmid into the plant cell :
- RNA polymerase
 - VirD2 endonuclease
 - Restriction enzymes
 - DNA ligase
38. Identify the particular cell cycle phase in which centriole duplication takes place :
- G1 phase
 - G2 phase
 - S phase
 - G0 phase
39. Identify the correct sequences of cellular events in signal transduction :
- Chemical Signal → Receptor → Target Proteins → Intracellular Proteins → Cell Response
 - Receptor → Chemical Signal → Target Proteins → Intracellular Proteins → Cell Response
 - Chemical Signal → Target Proteins → Receptor → Intracellular Proteins → Cell Response
 - Chemical Signal → Receptor → Intracellular Proteins → Target Proteins → Cell Response
40. Artificial chromosomes of bacteria are the _____ of their cells.
- Polymerase enzyme
 - Proteases
 - F-factors
 - Exonucleases
41. Pure obstructive type of jaundice in Hepatocellular jaundice as compared to is characterized by :
- Increased serum alkaline phosphatase and decreased levels of LDH and ALT
 - Increased serum alkaline phosphatase, LDH and ALT
 - Decreased serum alkaline phosphatase and increased serum LDH and ALT
 - Decreased serum alkaline phosphatase, LDH and ALT
42. The normal value of Creatine Phosphokinase (CPK) in serum varies between :
- 350 IU/L
 - 4–60 IU/L
 - 60–250 IU/L
 - 4–17 IU/L

43. Normally, urine samples should be examined within one hour of voiding because :
- Bacterial contamination will cause alkalinization of the urine
 - Red blood cells, leukocytes, and casts agglutinate after standing for several hours at room temperature
 - Ketones will increase due to bacterial and cellular metabolism
 - Urobilinogen increases and bilirubin decreases after prolonged exposure to light
44. In humans, the MHC is also known as the :
- CD complex
 - HLA complex
 - Ig complex
 - TNF complex
45. Name the particular plant hormone which is helpful in making RNA and proteins :
- Ethylene
 - Gibberellins
 - Auxin
 - Cytokines
46. Pomalin is sprayed over apple to increase fruit size, which is a combination of :
- Auxin and Cytokinin
 - Auxin and Gibberellin
 - Cytokinin and Ethylene
 - Cytokinin and Gibberellin
47. Name the plant which undergoes CAM (Crassulacean Acid Metabolism) photosynthesis :
- Wheat
 - Cactus
 - Sugarcane
 - Corn
48. Which of these is common to C3 and C4 plants ?
- Photorespiration
 - Oxaloacetic acid
 - Phosphoglyceric acid
 - Calvin cycle
49. Polyethylene glycol is used as a :
- Differentiation stimulant
 - Fusogenic chemical
 - Electrofusion stimulant
 - Callus stimulant
50. What do you mean by the word "explant" ?
- Leaves growing within a test tube
 - Plant part that is grown in soil
 - Any plant component that has been removed and grown in a test tube
 - A particular plant component produced in a test tube
51. Cells from very early-stage embryos have the ability to generate both embryonic and extra-embryonic cell types and defined as :
- Unipotent cell
 - Totipotent cell
 - Pluripotent cell
 - Multipotent cell
52. mRNA silencing has been used in producing transgenic plants resistant to :
- White rust
 - Bacterial blights
 - Bollworm
 - Nematodes

53. Which of the following is related to the Nagoya Protocol (29 October 2010 at Nagoya, Japan) ?
- Organic Farming
 - Pharmaceutical Industry
 - Biological Diversity
 - International Finance
54. Ecological succession initiate in coastal areas with sandy rocks is called :
- Hydrosere
 - Xerosere
 - Psammosere
 - Oxylosere
55. The Kyoto Protocol (Kyoto, Japan, on 11 December 1997) is related to :
- Methane
 - Carbon dioxide
 - Greenhouse gas emission
 - Ozone depleting substances
56. In evolutionary biology the speciation is how a new kind of plant or animal species is created by which :
- Evolutionary paths of species converge
 - A new gene pool is formed
 - Hybrid species formed
 - Shows up differences in physical traits
57. Which measure of variation is most sensitive to extreme values, or outliers ?
- Interquartile range
 - SD
 - Variance
 - Range
58. If the values of all data points in a dataset are the same, then what will be possible value of Standard Deviation (SD) ?
- Unidentified
 - One
 - Zero
 - Cannot be determined without additional information
59. The magnitude of coefficient of correlation (r-value) between two variables is negative 0.9 (-0.9), what can be said about the relationship between them in a linear regression ?
- No relationship
 - Strong positive relationship
 - Strong negative relationship
 - The correlation coefficient cannot be negative in regression
60. The probability of happening (occurring) of an event always lies between :
- -1 and 1
 - 0 and infinity
 - 0 and 1
 - $-\infty$ and infinity