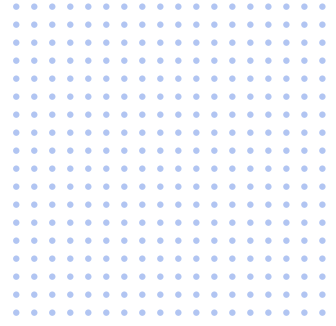




FOR KUET EXAM PREPARATION

KUET 2024

Question Paper · M.Sc. Clinical Biochemistry

EXAM	YEAR	TYPE	SUBJECT
KUET	2024	Question Paper	M.Sc. Clinical Biochemistry

Sr. No. **401**

ENTRANCE TEST-2024

SCHOOL OF BIOLOGICAL SCIENCES

CLINICAL BIOCHEMISTRY

Total Questions : 60
Time Allowed : 70 Minutes

Question Booklet Series

A

Roll No. :

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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-4496-A

1



[Turn over

SEAL

1. Which of the following is not a mucopolysaccharide ?
 - (A) Heparin
 - (B) Chondroitin sulphate
 - (C) Hyaluronic acid
 - (D) Inulin
2. The total DNA comprises of what amount of cytoplasmic DNA in cells ?
 - (A) 95-99%
 - (B) 65-75%
 - (C) 45-50%
 - (D) 1-5%
3. Cobalt containing vitamin is :
 - (A) Vitamin B₂
 - (B) Vitamin B₆
 - (C) Vitamin B₁₂
 - (D) Vitamin B₉
4. Which of the following is not a factor responsible for denaturation of Proteins ?
 - (A) pH change
 - (B) Organic solvents
 - (C) Heat
 - (D) Charge
5. The coenzyme is :
 - (A) Often a metal
 - (B) Always a protein
 - (C) Often a vitamin
 - (D) Always an organic compound
6. Blocking of enzyme action by blocking its active sites is :
 - (A) Allosteric Inhibition
 - (B) Feedback Inhibition
 - (C) Competitive Inhibition
 - (D) Non-competitive Inhibition
7. Specificity of protein in enzyme action depends upon :
 - (A) Active sites
 - (B) Km constant
 - (C) Linear sequence of amino acids
 - (D) Turn over number
8. Enzymes exist in the cells as :
 - (A) Solution
 - (B) Crystals
 - (C) Solids
 - (D) Colloids
9. Which of the following will yield glucose on hydrolysis ?
 - (A) Sucrose
 - (B) Lactose
 - (C) Maltose
 - (D) Raffinose
10. All the following are true about Phenylketonuria except :
 - (A) Deficiency of phenylalanine hydroxylase
 - (B) Mental retardation
 - (C) Increased urinary excretion of P-hydroxy-phenyl pyruvic acid
 - (D) Decreased serotonin formation
11. Protein anabolism is stimulated by :
 - (A) ACTH
 - (B) Testosterone
 - (C) Glycogen
 - (D) Epinephrine
12. Lipids play a crucial role in the formation of myelin, which is essential for :
 - (A) Muscle contraction
 - (B) Nerve impulse transmission
 - (C) Blood clotting
 - (D) Bone growth

13. Which of the phase of mitosis is longest ?
 (A) Telophase
 (B) Anaphase
 (C) Metaphase
 (D) Prophase
14. What is true about peroxisomes ?
 (A) Double membranous
 (B) Oxidase synthesizes H_2O_2
 (C) Catalase breakdown H_2O_2
 (D) Both (B) and (C)
15. All the following substances pass through cell membrane except :
 (A) O_2
 (B) H_2O
 (C) CO_2
 (D) H^+
16. Which cell organelle is present in both prokaryotic and eukaryotic cell ?
 (A) Endoplasmic reticulum
 (B) Mitochondria
 (C) Ribosomes
 (D) All of the above
17. Photochemical reaction occurs in :
 (A) The plasma membrane of green plants
 (B) The membrane of lysosomes
 (C) The outer membrane of mitochondria
 (D) The thylakoid membrane
18. How many ATP molecules are required for the conversion of one N_2 to $2NH_4^+$ during biological oxidation N_2 fixation ?
 (A) 8 ATP
 (B) 12 ATP
 (C) 10 ATP
 (D) 16 ATP
19. Triple response radical swelling, inhibition of elongation of epicotyl, horizontal growth of epicotyl is shown by dark grown pea seedlings in presence of which plant hormone ?
 (A) Ethylene
 (B) Auxin
 (C) Cytokinin
 (D) Insulin
20. The movement of water and minerals through xylem is explained by the :
 (A) Pressure flow theory
 (B) Translocation theory
 (C) Bulk flow theory
 (D) Cohesion tension theory
21. Independent assortment of genes occurs due to the orientation of chromosome at :
 (A) metaphase of mitosis
 (B) metaphase I of meiosis
 (C) metaphase II of meiosis
 (D) any phase of cell division
22. A normal couple has seven children (2 daughters & 5 sons). Three of the sons suffer from a hereditary disorder but none of the daughters is affected. Which is the inheritance type ?
 (A) Sex limited recessive
 (B) Autosomal dominant
 (C) Sex linked dominant
 (D) Sex linked recessive

SP-4496-A

23. Match the correct :

- | | |
|-------------------|--|
| P. Sex linked | 1. Baldness |
| Q. Sex influenced | 2. Acquired immune deficiency syndrome |
| R. Sex limited | 3. Klinefelter's syndrome |
| | 4. Haemophilia |
| | 5. Tuft of hairs (hypertrichosis on pinna) |

- (A) P-4, Q-1, R-5
(B) P-5, Q-3, R-2
(C) P-5, Q-1, R-3
(D) P-4, Q-3, R-2

24. What would be the best term to describe effect of one gene on another in a way that one would hide the effect of another on a phenotype ?

- (A) Pleiotropy
(B) Homeostasis
(C) Epistasis
(D) Hyperstasis

25. DNA helicases in E. Coli :

- (A) moves in the direction opposite of replication fork
(B) binds with template of the leading strand
(C) is a hexameric protein with ATPase activity
(D) catalyzes formation of primer

26. The Shine-Dalgarno sequence is responsible for :

- (A) binding of RNA Polymerase to gene during transcription
(B) binding DNA Polymerase to origin of replication during DNA replication
(C) binding of ribosome to mRNA during initiation of translation
(D) binding of Snurps during splicing

27. Degeneracy of genetic code implies that :

- (A) the codons degenerate after the synthesis of polypeptide chain
(B) more than one codon can code for one amino acid
(C) some codons degenerate as they are not involved in coding for any amino acid
(D) one codon can code for more than one amino acid

28. In E. coli which of the following codons are recognized by the release factor RF1 ?

- (A) UAG and UGA
(B) UAA and UGG
(C) UAG and UAA
(D) UAG and UUA

29. Which of the following is viral disease ?

- (A) Hepatitis
(B) Influenza
(C) Measles
(D) All of the above

30. The Causative agent of Cholera is :

- (A) Vibrio cholera
(B) Salmonella Typhi
(C) Bacillus Anthracis
(D) None of the above

31. Viruses which cause lysis of bacteria are known as :

- (A) lysogenic
(B) lytic
(C) lipolytic
(D) lysozymes

32. HIV is :
 (A) Retrovirus
 (B) Single stranded RNA genome
 (C) Both (A) and (B)
 (D) None of the above
33. Inflammation are characterized by :
 (A) Pain
 (B) Redness
 (C) Swelling
 (D) All of the above
34. The antibody present on the surface of mature B-Cell :
 (A) IgM
 (B) IgG
 (C) IgA
 (D) None of the above
35. Which immunoglobulin is involved in hypersensitivity reactions ?
 (A) IgE
 (B) IgD
 (C) IgA
 (D) IgG
36. Thrombosis :
 (A) is the flow of blood in arteries or veins is impeded
 (B) it cause blockage in the artery and vein
 (C) both (A) and (B)
 (D) none of the above
37. What is the purpose of using a selectable marker in recombinant DNA technology ?
 (A) To mark the location of a specific gene
 (B) To facilitate the cloning process
 (C) To distinguish recombinant from non-recombinant cells
 (D) To induce mutations in the target gene
38. What is the role of a host organism in gene cloning ?
 (A) To produce the gene of interest
 (B) To provide a suitable environment for gene expression
 (C) To act as a template for DNA synthesis
 (D) To transport recombinant DNA into other organisms
39. Which of the following statements regarding Ti plasmids is true ?
 (A) Ti plasmids are found naturally in plant cells
 (B) Ti plasmids primarily induce the formation of leaves in infected plants
 (C) Ti plasmids transfer genes responsible for opine synthesis into plant cells
 (D) Ti plasmids primarily infect animal cells instead of plant cells
40. Golden Rice is genetically engineered to produce higher levels of which essential nutrient ?
 (A) Vitamin C
 (B) Iron
 (C) Vitamin E
 (D) Beta-carotene (provitamin A)
41. In thyroid function tests, what does an elevated level of free thyroxine (FT4) indicate ?
 (A) Hyperthyroidism
 (B) Hypothyroidism
 (C) Euthyroidism
 (D) Thyroid cancer
42. What is the significance of an elevated level of serum alkaline phosphatase (ALP) in liver function tests ?
 (A) Hepatocellular damage
 (B) Cholestasis or obstruction of bile flow
 (C) Impaired protein synthesis
 (D) Liver cirrhosis

43. Which lipid abnormality is associated with an increased risk of developing atherosclerosis and cardiovascular disease ?
- High levels of HDL cholesterol
 - Low levels of LDL cholesterol
 - High levels of triglycerides
 - Normal levels of total cholesterol
44. What is the primary purpose of a glucose tolerance test (GTT) ?
- To diagnose diabetes mellitus
 - To assess pancreatic function
 - To evaluate kidney function
 - To monitor glycogen storage disorders
45. What is the function of the mucociliary escalator in the respiratory system ?
- Regulation of airflow into the lungs
 - Exchange of oxygen and carbon dioxide in the alveoli
 - Removal of foreign particles and pathogens from the airways
 - Control of respiratory rate and depth
46. What is the primary function of the gall bladder in the digestive system ?
- Production of digestive enzymes
 - Storage and concentration of bile
 - Absorption of nutrients
 - Regulation of gastric acid secretion
47. Which of the following hormones stimulates the release of bile from the gall bladder and pancreatic enzymes from the pancreas ?
- Gastrin
 - Secretin
 - Ghrelin
 - Insulin
48. Which hormone is produced by the adrenal medulla and is involved in the body's response to stress, regulating heart rate and blood pressure ?
- Cortisol
 - Epinephrine
 - Aldosterone
 - Thyroxine
49. The term antibodies was discovered by :
- Ehrlich and Metchnikoff
 - Karl Landsteiner
 - Emil Von Behring
 - Louis Pasteur
50. Exogenous antigens bind to which class of MHC molecules ?
- MHC-I
 - MHC-II
 - MHC-I
 - All of the above
51. Which of the following represent the antigen presenting cells ?
- T cells, Null cells, Macrophages
 - B cells, Macrophages, Dendritic cells
 - Natural killer cells, Kuffer cells, Macrophages
 - B cells, T cells, Natural killer cells
52. β -2 microglobulin is found on which MHC molecule ?
- MHC class I
 - MHC class II
 - MHC class III
 - All of the above

53. Which of the following is soluble in water ?
- CS_2
 - $\text{C}_2\text{H}_5\text{OH}$
 - CCl_4
 - CHCl_3
54. Hydrogen bonding is maximum in :
- ethanol
 - diethyl ether
 - ethyl chloride
 - triethyl amine
55. The molecule which does not exhibit dipole moment is :
- NH_3
 - CHCl_3
 - H_2O
 - CCl_4
56. Which one of the following is the strongest acid ?
- $\text{ClO}_3(\text{OH})$
 - $\text{ClO}_2(\text{OH})$
 - $\text{SO}(\text{OH})_2$
 - $\text{SO}_2(\text{OH})_2$
57. Sodium dodecyl sulphate is used to separate proteins by PAGE because :
- It increases the solubility of proteins
 - It gives the uniform negative charge to the proteins
 - Increases stability of proteins
 - It decreases the surface tension of the buffer used in electrophoresis
58. The three-dimensional images of the surface of the cells and tissue can be visualized by :
- Scanning electron microscope
 - Fluorescence microscope
 - Compound microscope
 - Transmission electron microscope
59. The molecular mass of the smallest molecules unable to penetrate the pores of a gel is called :
- Void volume
 - Exclusion limit
 - Bed volume
 - Internal volume
60. The forces that effect the biomolecules to sediment at the bottom of the tube is :
- Force of buoyancy
 - Force of friction
 - Centrifugal force
 - All of the above