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FOR KUET EXAM PREPARATION

KUET 2021 Question Paper · M.Sc. Biochemistry

EXAM	YEAR	TYPE	SUBJECT
KUET	2021	Question Paper	M.Sc. Biochemistry

Sr. No. .....

ENTRANCE TEST-2021

SCHOOL OF BIOLOGICAL SCIENCES

BIOCHEMISTRY

Question Booklet Series **A**

Total Questions : 60
Time Allowed : 70 Minutes

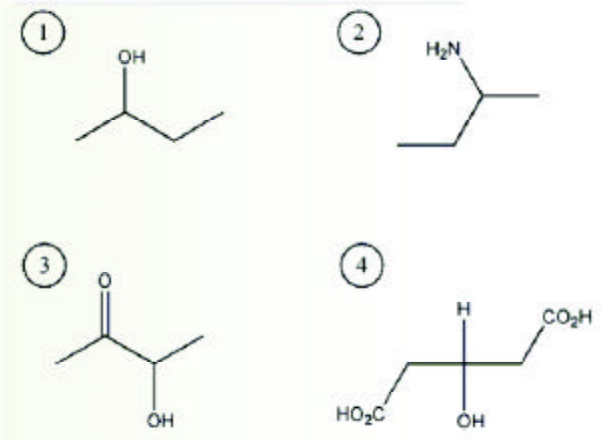
Roll No. : | | | | | | |

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.

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1. N-glycosidic bond is between:
   (A) Nitrogenous base and ribose sugar of RNA
   (B) Nitrogenous base and de-oxy ribose sugar of DNA
   (C) Both (A) and (B) are correct
   (D) Neither (A) nor (B) is correct
2. Among the following pairs, the identical bond order is in:
   (A) N_2, O_2^{+2}
   (B) N_2, O^{-2}
   (C) N^{-2}, O_2
   (D) O^{2+}, N_2
3. AB and CD are two diatomic molecules with dipole moments 10.41D and 10.27 D, and their bond distances are 2.82 and 2.67A°, respectively, indicating that:
   (A) AB has lesser ionic bond character than CD
   (B) AB has more ionic bond character than CD
   (C) 100% ionic in both the molecules
   (D) Bonding is nearly covalent in both the molecules
4. Taking a close view of the following structures of compounds, indicate which is not chiral:



   (A) 1
   (B) 2
   (C) 3
   (D) 4
5. The largest unit of energy is:
   (A) electron volt
   (B) Joule
   (C) calorie
   (D) erg
6. Nernst formulated one among the following laws:
   (A) First law of thermodynamics
   (B) Second law of thermodynamics
   (C) Third law of thermodynamics
   (D) None of the above
7. At pH = 10, the potential of a hydrogen electrode is:
   (A) 0.59 V
   (B) -0.59 V
   (C) 0.059V
   (D) -0.059V
8. Buffering capacity of a buffer depends upon:
   (A) Concentration of the buffer constituents
   (B) pK of a buffer
   (C) Both (A) & (B)
   (D) Neither (A) nor (B)
9. The interior compartment of the thylakoid membrane becomes _____, during photosynthetic electron transport.
   (A) Basic as compared to reaction centre
   (B) More acidic than stroma
   (C) Enriched in ATP
   (D) The site for glucose formation
10. Glycolate substrate is associated with:
   (A) Photorespiration
   (B) Krebs cycle
   (C) C_3 cycle substrate
   (D) Glycolysis

11. The site for conversion of pyruvate to PEP by use of ATP in C_4 plants lies in:
    (A) Mesophyll cells of chloroplasts
    (B) Mesophyll cells of cytoplasm
    (C) Bundle sheath cells of cytoplasm
    (D) Bundle sheath cells of chloroplasts
12. Tick odd one out with regard to transpiration:
    (A) Water comes out as water vapors
    (B) It occurs in all plants
    (C) Involvement of Root pressure
    (D) It occurs by stomata, lenticels, and cuticle
13. As per the International Union of Conservation of Nature and Natural Resources (IUCN), endangered species are defined as:
    (A) The species which are out of the list of conservation measure
    (B) The species which no longer exists today
    (C) The species which are in danger of extinction and whose survival is unlikely if the causal factors continue to be operating
    (D) All of the above
14. In India Biodiversity Act came into existence in:
    (A) 2000 AD
    (B) 2001 AD
    (C) 2002 AD
    (D) 2003 AD
15. The incorrect one from the below mentioned statements is:
    (A) BOD value of clean water is less than 5 ppm
    (B) Drinking water pH should be between 5.5- 9.5
    (C) Carbon, sulphur and nitrogen oxides are the most widespread air pollutants
    (D) Dissolved oxygen concentration below 5 ppm is ideal for the growth of fish
16. The secondary pollutant among the following is:
    (A) PAN
    (B) N_2O
    (C) SO_2
    (D) CO_2
17. The outcome of most host-parasite relationships depends on:
    (A) The host's defenses or degree of resistance
    (B) The number of microorganisms infecting the host
    (C) The virulence of the organism
    (D) All of the above
18. Considering that the doubling time of a bacterium is 20 min, starting with one bacterium initially, the number of bacteria produced in 2 hours will be:
    (A) 16
    (B) 32
    (C) 64
    (D) 128
19. SARS-CoV-2 belongs to the β- CoVs category. It has round or elliptic and often pleomorphic form and a diameter of approximately:
    (A) 60-140 nm
    (B) 90-250 nm
    (C) 30-50 nm
    (D) 50-100 nm
20. Which one among following bacteria associated with the mitigation of oil spills, is called as the super-bug?
    (A) *E.coli*
    (B) *Pseudomonas putida*
    (C) *Salmonella sp.*
    (D) *Agrobacterium tumefaciens*

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21. Cellulose, the structural polysaccharide of plant is a polymer of:
    (A) α-D -Glucose
    (B) β-D -Glucose
    (C) α-D -Galactose
    (D) α-D -Galacturonic acid
22. Helix disrupting amino acid is:
    (A) Lysine
    (B) Cysteine
    (C) Proline
    (D) Arginine
23. The lipid exclusively present in mitochondrial membrane is:
    (A) Lecithin
    (B) Ceramide
    (C) Cephalin
    (D) Cardiolipin
24. If the percentage of adenine in a DNA sample is 20%. What would be the percentage of other bases?
    (A) T=30%, G=20%, C=30%
    (B) T=40%, G=20%, C=20%
    (C) T=20%, G=30%, C=30%
    (D) T=20%, G=20%, C=40%
25. The E.C code word for alcohol dehydrogenase is:
    (A) EC:1.1.1.1
    (B) EC:1.2.3.4
    (C) EC:1.1.1.27
    (D) EC:2.1.1.1
26. Enzyme activity is a measure:
    (A) Catalytic ability
    (B) Enzyme specificity
    (C) Enzyme sensitivity
    (D) Potential energy of enzyme
27. In which type of inhibition both K_M and V_{max} decreases?
    (A) Competitive
    (B) Non-competitive
    (C) Un competitive
    (D) Irreversible
28. Important amino acid/s at the active site of hexokinase is/are:
    (A) Asp^{205}
    (B) Thr^{168}
    (C) Lys^{169}
    (D) All of the above
29. Which one among the following, is not synthesized from tyrosine?
    (A) Nor epinephrine
    (B) Dopamine
    (C) Melatonin
    (D) Thyroxine
30. One molecule of urea is formed at the expense of:
    (A) 1 ATP
    (B) 2 ATP
    (C) 3 ATP
    (D) 4 ATP

31. Which of the following contributes nitrogen atoms to both purine and pyrimidine rings?
    (A) Aspartate
    (B) Carbamoyl phosphate
    (C) CO_2
    (D) Glutamine

32. For the formation of Glycogen _____ acts a precursor.
    (A) UDP-glucose
    (B) Malate
    (C) Glycerol 3-phosphate
    (D) Glyceraldehyde- 3-phosphate

33. Some bacteria have a slimy layer outside cell wall responsible for its virulence called as:
    (A) Outer layer
    (B) Capsule
    (C) Plasmid
    (D) Fimbriae

34. Consider two statements:

    Statement 1 : Sclerenchyma cells do not have plasmodesmata

    Statement 2 : The cell walls of some permanent tissues are heavily lignified.

    Select the correct one from the following options
    (A) Both(1) and (2) are correct
    (B) Both(1) and (2) are incorrect
    (C) Statement(1) is correct and (2) is wrong
    (D) Statement(1) is wrong and (2) is correct

35. All are the functions of Golgi bodies except:
    (A) Cell plate formation
    (B) Secretory protein synthesis
    (C) Post translational modifications
    (D) Sorting centre of the cell

36. _____ tends to vanish always during meiosis and mitosis.
    (A) Plastids
    (B) Plasma membrane
    (C) Nucleolus and nuclear membrane
    (D) All of the above

37. The genetic code operates *via* :
    (A) The protein moiety of DNA
    (B) The base sequences of DNA
    (C) The nucleotide sequence of mRNA
    (D) The base sequence of tRNA

38. A level of regulation, demonstrated by the termination of transcription if tryptophan is abundant, by the tryptophan operon in E.coli is called as:
    (A) Attenuation
    (B) Co-repression
    (C) Activation
    (D) Catabolite repression

39. The characteristic feature/s of homologous chromosomes is/are:
    (A) They regularly exchange parts by crossing over at meiosis
    (B) They physically pair at meiosis
    (C) They carry alleles for the same gene in the same relative position
    (D) All of the above

40. The causes of frame shift mutation can be:
    (A) Formation of thymine dimmers
    (B) Deamination of cytosine to uracil
    (C) Both (A) and (B)
    (D) Neither (A) nor (B)

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41. One among the following chromatographic techniques used for determination of molecular weight of Enzymes/proteins is:
    (A) Ion exchange chromatography
    (B) Molecular exclusion chromatography
    (C) Affinity Chromatography
    (D) Paper chromatography

42. Which among the following is not the requirement for the formation of polyacrylamide gel for native PAGE?
    (A) Acrylamide and Bis-acryalmide
    (B) TEMED
    (C) SDS
    (D) Ammonium persulphate

43. Who is considered to be the pioneer of Centrifugation?
    (A) Davis
    (B) Michael Tswett
    (C) Theodore Svedberg
    (D) Lamellae

44. A DNA solution showing absorbance of 0.2 at 260 nm, has a concentration of:
    (A) 10 µg/ml
    (B) 20 µg/ml
    (C) 30 µg/ml
    (D) 50 µg/ml

45. Gastrin stops its secretions when the stomach pH reaches up to:
    (A) 1.5
    (B) 4.5
    (C) 6.8
    (D) 7.2

46. Which hormone is responsible for conversion of glycogen into glucose?
    (A) Insulin
    (B) Glucagon
    (C) FSH
    (D) None of the above

47. Pulmonary fibrosis has most commonly been associated with:
    (A) Asthma
    (B) Cigarette smoking
    (C) Prolonged shallow breathing
    (D) Immobility

48. The most muscular, powerful heart chamber is the:
    (A) Left atrium
    (B) Right atrium
    (C) Left ventricle
    (D) Right ventricle

49. The normal range of values for AST (SGOT) is about _____ per liter of serum.
    (A) 5 to 40 units
    (B) 7 to 56 units
    (C) 20 to 200 units
    (D) 0.1 to 10 units

50. Which of the following diseases does obesity increase the risk of developing?
    (A) Type 2 diabetes
    (B) Cardiovascular diseases
    (C) Cancers
    (D) All of the above

51. When a patient tests positive for 6-monoacetyl morphine, it indicates:
    (A) Ingestion of Heroin
    (B) Ingestion of Methamphetamine
    (C) Ingestion of Cocaine
    (D) Ingestion of Marijuana

52. Which of the following is /are associated with kidney function tests:
    (A) Creatinine clearance tests
    (B) Inulin clearance tests
    (C) Urea clearance tests
    (D) All of the above

53. A hapten refers to:
    (A) An epitope
    (B) A paratope
    (C) A small chemical grouping which reacts with preformed antibodies
    (D) An immunogen

54. Which one of the following mast cell products is not preformed and therefore has to be newly synthesized?
    (A) Histamine
    (B) Prostaglandin D_2
    (C) Heparin
    (D) Eosinophil chemotactic factor

55. Protection of body surfaces is not done by:
    (A) Gastric acid
    (B) Mucus
    (C) Salivary amylase
    (D) Skin

56. An antibody having high carbohydrate content is:
    (A) IgE
    (B) IgM
    (C) IgD
    (D) IgG

57. Recombinant plasmids are added to a bacterial culture that has been pretreated with _____ ions.
    (A) Iodine
    (B) Magnesium
    (C) Calcium
    (D) Ferric

58. Which of the following pair of hormones is required for a callus to differentiate?
    (A) Ethylene and Auxin
    (B) Auxin and cytokinin
    (C) Auxin and Abscisic acid
    (D) Cytokinin and gibberellins

59. Arber, Nathans, Smith were awarded noble prize in recognition of discovery of restriction enzymes and their application to the problems of molecular genetics:
    (A) 1973
    (B) 1978
    (C) 1975
    (D) 1983

60. A cell line refers to:
    (A) Multilayer culture
    (B) Transformed cells
    (C) Multiple growth of cells
    (D) Sub culturing of primary culture

ROUGH WORK