



K21U 1839

Reg. No. :

Name :

III Semester B.Sc. Degree CBCSS (OBE) Reg./Sup./Imp.
Examination, November 2021
(2019 – 2020 Admission)
General Awareness Course in Microbiology
3A11MCB : BIOCHEMISTRY FOR MICROBIOLOGY

Time : 3 Hours

Max. Marks : 40

PART – A

Answer **all** questions. **Each** question carries 1 mark.

1. Write the name of an amino acid with two amino groups.
2. Name the amino acid that contains methyl group as R group.
3. What is the minimum number of polypeptide chains, required in a protein, for the formation of quaternary structure ?
4. Draw the figure of guanine.
5. Write the name of a monounsaturated fatty acid with 16 carbon atoms.
6. How many C – C double bonds are there in arachidonic acid ? (1×6=6)

PART – B

Answer **any 6** questions. **Each** question carries 2 marks.

7. Draw the structure of palmitic acid and label hydrophobic and hydrophilic parts.
8. Give examples of two heteropolysaccharides in nature.
9. How does α -D glucose differ from β -D glucose ? Draw the structure of both.
10. Explain why, some amino acids are said to be essential while others are non-essential.

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11. Explain the term “zwitter ion”. Draw the diagram of alanine in zwitter ionic form.
12. How do we distinguish between competitive inhibition and non-competitive inhibition of enzyme action from a double reciprocal plot ?
13. Give examples of any two hydrolases present in human alimentary canal.
14. What is the difference between purine and pyrimidine ? Give an example for a pyrimidine, present usually only in DNA. (2×6=12)

PART – C

Answer **any 4** questions. **Each** question carries **3** marks.

15. Define the term “pH”. State two methods for determining pH of a solution.
16. State and explain Henderson – Hasselbalch equation. What is the importance of this equation in routine laboratory work ?
17. Draw the structure of glycogen. Show the two types of linkages between monomers and explain their roles.
18. Draw a figure showing the formation of alanyl glycine. Label the peptide bond in the figure.
19. Name a coenzyme that mediates acyl transfer between substrates. Name two enzymes which required this coenzyme.
20. Explain the structure of phosphatidic acid using a diagram. (3×4=12)

PART – D

Answer **any 2** questions. **Each** questions carries **5** marks.

21. a) What is a “reducing sugar” ?
b) Is sucrose a reducing sugar ? Why ?
c) Draw the diagrams of sucrose and lactose and point out the difference between the two.



22. a) What is the reason for the charge on protein molecules ?
b) How can we separate a mixture of proteins based on their charge ? Explain briefly.
c) If all proteins in a mixture have the same charge, then how can we separate them using the above method ? Explain.
23. a) Define the term "activation energy" in enzyme activity. How does it affect the rate of the reaction ?
b) How does an enzyme increase the rate of the reaction ? Explain your answer using a suitable diagram.
24. a) Presence of thymine, instead of uracil makes, DNA more stable. Explain.
b) Explain why, the nucleic acid containing deoxyribose, compared with that containing ribose, functions as genetic material in almost all living organisms.
c) Explain using a suitable diagram why guanine can pair only with cytosine, not with thymine, in DNA.
- (5×2=10)**
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