

RAMAKRISHNA MISSION VIDYAMANDIRA

(Residential Autonomous College affiliated to University of Calcutta)

B.A./B.Sc. THIRD SEMESTER EXAMINATION, MARCH 2021

SECOND YEAR [BATCH 2019-22]

ZOOLOGY (HONOURS)

PAPER : VII(CC7)

Date : 18/03/2021

Time : 11 am – 1 pm

Full Marks : 50

Answer all the Questions

Group-A

1. a) Why pyruvate dehydrogenase is called complex enzyme? (1.5)
b) Why TCA cycle is called ‘Amphibolic pathway’? (1.5)
c) What is pentose phosphate pathway? State its significance. (1+1)
2. a) What are epimers? How does it differ from anomers? Explain with an example. (2)
b) What is cellulose and how is it structurally different from starch? (1.5)
c) Interpret the observation that ‘sucrose is not a reducing sugar but maltose is’. (1.5)

Group-B

3. a) Write down the structures of a simple and a complex lipid. (2)
b) How does fatty acid get activated during β -oxidation? (3)
4. a) What is the role of Malonyl-CoA in fatty acid biosynthesis? (2.5)
b) Write short notes on biological significance of phospholipids. (2.5)

Group-C

5. Explain the process and significance of competitive inhibition of the enzymes in the light of the use of antibiotics against a bacterial infection. (5)
6. a) How acetylcholine function differs from the GABA? (2.5)
b) How the reuptake of the neurotransmitters influences the physiology? (2.5)

Group-D

7. a) Briefly outline the essential features of secondary structure of protein. (2)
b) Write down the chemical structures of leucine and lysine indicating their state of ionizations at pH 7.0. (2)
c) In case of ion exchange chromatography, DEAE-cellulose to be used as matrix material for what kind of separation? (1)
8. a) Describe Ramachandran Plot and state its applications in predicting a few issues of protein structure. (2)
b) Enumerate the nature of the forces that stabilizes a protein structure. (2)
c) In case of gel filtration chromatography, what is meant by the terms ‘void volume’ and ‘elution volume’? (1)

Group-E

9. a) Define oxidative phosphorylation. (1)
b) Illustrate the structure of ATP synthase. (3+1)
10. a) Compare oxidative and non-oxidative deamination with examples. (3)
b) Why ornithine cycle is called urea bicycle? (2)

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