

QP Code : P24A011

Reg. No :

Name :

ST MARY'S COLLEGE (AUTONOMOUS), THRISSUR-20

I SEMESTER M.Voc (CBCSS-VPG) DEGREE EXAMINATION, November 2024

M.Voc Applied Biotechnology

GEC1AB02 : Biochemistry

2024 Admission Onwards

Time : 3 Hours

Maximum Weightage : 30

Part A

*Short answer type questions: Answer **any four** questions. Weightage 2 for each question*

1. Define lipids and list the major classes of lipids. [BTL1]
2. Define polysaccharides and discuss the basic structure and properties of homopolysaccharides. Provide examples to illustrate your points. [BTL1]
3. Describe how the citric acid cycle contributes to ATP production during aerobic respiration, and apply this knowledge to explain how exercise intensity affects ATP yield. [BTL3]
4. Identify the main regulatory enzymes of glycolysis and gluconeogenesis, and describe how their activities are reciprocally regulated. [BTL3]
5. Illustrate the steps of beta-oxidation with a specific example. [BTL3]
6. Why sucrose is called an invert sugar? [BTL2]
7. Assess the clinical significance of measuring blood levels of urea and uric acid. [BTL5]
(4x2 = 8 Weightage)

Part B

*Short essay-type questions: Answer **any four** questions. Weightage 3 for each question*

8. Define and classify carbohydrates with suitable examples. [BTL1]
9. What are the different structural forms of DNA, and how do they differ from each other? [BTL2]
10. Discuss the significance of isozymes and their role. [BTL3]
11. Explain the de novo pathways of purine biosynthesis. [BTL1]
12. Compare and contrast the Lock and Key Model and induced Fit Hypothesis. [BTL2]
13. Analyze the role of the kinetic parameters K_m and V_{max} in regulating enzyme activity. [BTL3]

Turn Over

14. Analyze the role of allosteric regulation in enzyme activity. [BTL4]
(4x3 = 12 Weightage)

Part C

*Essay-type questions: Answer **any two** questions. Weightage 5 for each question*

15. Illustrate the ATP-ADP cycle and its significance in energy metabolism. [BTL3]
16. Outline the pathway of electron flow through the electron transport chain. [BTL3]
17. Apply the concept of protein folding to explain the formation of alpha-helices and beta-sheets. [BTL3]
18. Explain the classification of vitamins. [BTL2]
(2x5 = 10 Weightage)

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