

Reg. No. :

Name :

Fourth Semester B.Sc. Degree Examination, May 2021

Career Related First Degree programme under CBCSS

Group: 2(a) – Botany And Biotechnology

Complementary Course

BB 1431 METABOLISM

(2019 Adm Regular)

Time : 3 Hours

Max. Marks : 80

SECTION – A

Answer the following questions in a word or in one or two sentences. Each question carries **1** mark.

1. Name any two ketone bodies.
2. What is meant by zymogen?
3. The rate limiting enzyme in cholesterol biosynthesis.
4. Give an example of an uncoupler of oxidative phosphorylation.
5. What are Okazaki fragments?
6. Give two examples of high energy compounds which are intermediates in glycolysis.
7. Name the two carbon compound that is formed during each cycle of β -oxidation.

8. What is glycogenin?
9. The RNA which has unusual bases incorporated in it.
10. What do you mean by a degenerate codon?

(10 × 1 = 10 Marks)

SECTION – B

Write a paragraph on **any eight** of the following. Each question carries **2** marks.

11. Give the ATP yield from one glucose molecule in (a) aerobic oxidation and (b) anaerobic oxidation
12. In which way is hexokinase significant in carbohydrate metabolism?
13. Comment on Coenzyme Q.
14. What is meant by transamination?
15. What is meant by post translational modification? Mention any one posttranslational modification.
16. Explain complex I in electron transport chain?
17. Give the significance of Tus–Ter complex in DNA replication.
18. What are open reading frames?
19. Mention the intermediate carrier of amino groups at the active site of aminotransferases. Explain how is it linked to the active site of the enzyme?
20. What is thermogenin? What is its function?
21. Enumerate the four enzymes in pentose phosphate pathway.
22. What is meant by activation of aminoacids? Give the enzyme involved in this process.
23. Mention the precursor and any three intermediates of fatty acid biosynthesis.

24. Give the energetic cost for the production of one glucose molecule from pyruvate?
25. Give the functions of any two types of RNA.
26. What is meant by cori cycle?

(8 × 2 = 16 Marks)

SECTION – C

Short essays not exceeding 120 words.

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

27. Describe the fates of pyruvate under anaerobic conditions?
28. How many irreversible steps are there in glycolysis? How are they bypassed in gluconeogenesis.
29. What are the salient features of genetic code?
30. Outline the synthesis of cholesterol.
31. Illustrate the structure of tRNA.
32. Compare oxidative phosphorylation and substrate level phosphorylation.
33. Discuss the structure and functions of mRNA and rRNA.
34. Comment on the proofreading activity of aminoacyl tRNA synthetase.
35. Briefly explain the composition and functions of bile
36. Discuss the structure of ATP synthase.
37. Give an account of how glycolysis is regulated.
38. Discuss how the proteolytic enzymes are activated in the gastrointestinal tract.

(6 × 4 = 24 Marks)

SECTION – D

Long essay

Answer **any two** questions. **Each** question carries **15** marks.

39. Describe glycogen metabolism and its regulation.
40. Explain the process of beta oxidation of palmitic acid. Elaborate the energy yield of the process.
41. Elaborate the metabolism of aminoacids.
42. Explain the urea cycle and its significance.
43. Elaborate the high energy compounds.
44. Give a detailed account of transcription in prokaryotes

(2 × 15 = 30 Marks)