



Reg. No. :

Name :

Fourth Semester B.Sc. Degree Examination, February 2022

Career Related First Degree Programme under CBCSS

Group 2(a) – Botany and Biotechnology

Complementary Course

BB 1431 : METABOLISM

(2019 Admission)

Special Examination

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 the precursors of triacylglycerol synthesis.
2. What are replicators?
3. The stored nutrient that is having the highest energy content.
4. Name any two water soluble coenzymes that undergo reversible oxidation and reduction in electron transfer reactions.
5. What are Shine-Dalgarno sequences?
6. Name the activated isoprene units in cholesterol biosynthesis.



7. Name the fundamental organizational unit of chromatin.
8. Give the precursor of glycogen synthesis?
9. How does GSK3 regulate glycogen synthase?
10. Which is the electron acceptor in hexosemonophosphate pathway?

(10 × 1 = 10 Marks)

SECTION – B

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

11. Name the enzymes in fatty acid synthase complex.
12. Give the significance of carbamoyl phosphate synthetase I?
13. Write two salient features of genetic code.
14. What is the significance of brown adipose tissue?
15. Explain alcohol fermentation.
16. Explain chemiosmosis.
17. Name the universal central pathway in which the breakdown compounds of carbohydrates, proteins and fats are oxidised to CO₂. Name the site where this pathway operates.
18. What are the different types of RNAs? Which is the most shortlived among them?
19. Explain Cori cycle.
20. What are essential fatty acids? Give two examples?
21. Why is beta oxidation named so? Give the end product of beta oxidation.
22. Name the organ that cannot utilize ketone bodies? Why is it so?

23. What is meant by transdeamination?
24. Mention the role of peptidyl transferase.
25. Give the functions of tRNA and rRNA.
26. Explain the action of transketolase enzyme.

(8 × 2 = 16 Marks)

SECTION – C

Short essays not exceeding **120** words. Answer any **six** questions. **Each** question carries **4** marks.

27. Explain pyruvate dehydrogenase complex.
28. Compare the different isozymes of hexokinase in liver and muscle.
29. Briefly explain beta oxidation?
30. Illustrate carnitine shuffle.
31. Discuss rotational catalysis in the formation of ATP with suitable diagrams.
32. Write a note on glycogen breakdown.
33. Discuss urea cycle.
34. Differentiate between transcription and replication.
35. Briefly explain RNA processing.
36. Write down the physiological functions of phospholipids.
37. Give an account of the inhibitors of electron transport chain.
38. Explain pentose phosphate pathway.

(6 × 4 = 24 Marks)



SECTION – D

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

39. Describe the principal pathway of glucose oxidation.
40. Explain the digestion and absorption of lipids in detail.
41. Elaborate the process of DNA replication in prokaryotes.
42. Discuss mitochondrial electron transport chain in detail. How the electron flow is coupled to synthesis of ATP?
43. Elaborate the biosynthesis of cholesterol.
44. Give a detailed account of protein synthesis.

(2 × 15 = 30 Marks)

