19. (a) What are the classifications of amino acids?

Or

(b) Explain the structure of proteins?

20. (a) Explain the de novo pathway of purine biosynthesis?

Or

(b) Explain the chemical synthesis of oligonucleotides.

SECTION C — (3 × 10 = 30)

Answer any THREE questions

21. Write detail account on biological significance of ATP and AM synthesis?

22. Explain Glycolysis with respect to energetic and features?

23. Explain the physical properties of lipids? Write a short note on specification reaction of lipids?

24. Write about citric acid cycle pathway, energetic and its significance?

25. Give a detailed account on Purine and Pyrimidine biosynthesis.

———————

S.No. 2598 **P 22 BTCC 1A**

(For candidates admitted from 2022–2023 onwards)

M.Sc. DEGREE EXAMINATION, NOVEMBER 2022

Biotechnology – Core Choice Course

BIOCHEMISTRY

Time : Three hours Maximum : 75 marks

SECTION A — (20 marks)

Answer ALL questions.

I. Multiple Choice Questions (5 × 1 = 5)

1. Which of the following equation shows the relationship between free energy change
   (a) $\Delta G = T\Delta H - \Delta S$
   (b) $\Delta G = T\Delta H / \Delta S$
   (c) $\Delta G = \Delta H / T\Delta S$
   (d) $\Delta G = \Delta H - T\Delta S$

2. Which of the following is not the precursor of gluconeogenesis?
   (a) Glycolytic products
   (b) Citric acid cycle intermediates
   (c) Glucogenic amino acid
   (d) Lysine or leucine

3. Which of the following pathway is not used for triacyl glycerol synthesis?

(a) Glycerol 3 phosphate pathway

(b) Glyoxylate pathway

(c) Mono-acyl glycerol pathway

(d) Kennedy pathway

4. Which of the following amino acid is considered as both ketogenic and glucogenic?

(a) Valine (b) Tryptophan

(c) Lysine (d) None of these

5. Name the precursor of RNA?

(a) Glutamine (b) Cytidine

(c) Ortidylate (d) Uridylate

II. Fill in the blanks : (5 × 1 = 5)

6. ΔG° is defined as the ————————

7. Calvin cycle is ————————

8. Bile acid is derived from ————————

9. An amino acid that yields acetoacetyl COA during the catabolism of its carbon skeleton will be considered as ————————.

10. Salvage pathway is used in the synthesis of ————————.

III. Answer ALL questions. (5 × 2 = 10)

11. Define oxidative Phosphorylation?

12. Define carbohydrates?

13. Define ketogenesis?

14. What is the significance of urea cycle?

15. Define oligonucleotides?

SECTION B — (5 × 5 = 25)

Answer ALL questions, choosing either (a) or (b)

16. (a) Write a note on Glycolysis?

Or

(b) Explain chemiosmotic theory?

17. (a) Enumerate the various functions of carbohydrates?

Or

(b) Write the metabolic pathway of carbohydrate?

18. (a) What are lipoproteins? Give their classification?

Or

(b) Explain the β oxidation of fatty acid?