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GN-228

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V Semester B.Sc. Examination, December - 2019
(F+R) (CBCS) (2016-17 and Onwards)

BIOCHEMISTRY

Paper - V : Biochemistry

Time : 3 Hours

Max. Marks : 70

Instructions : (i) The question paper has **two** parts, Part-A and Part-B.
(ii) Answer **any eight** questions from Part-A and **nine** questions from Part-B.

PART - A

Answer **any eight** of the following questions. Each question carries **two** marks. **8x2=16**

1. What are Anomers ? Give an example.
2. Mention the biological importance of amino sugars.
3. What are homopolysaccharides ? Give an example.
4. Mention any two biological roles of waxes.
5. Explain xanthoproteic reaction.
6. Write the name and structure of iminoacid.
7. What is Iodine number ? Give its significance.
8. Write the structure of ATP.
9. What is PUFA ? Give an example.
10. What are endergonic reactions ? Give an example.
11. Give the biological role of NHI proteins.
12. What are endergonic reactions ? Give an example.

P.T.O.

**PART - B**

Answer **any nine** of the following questions. Each question carries **six 9x6=54** marks.

- 13.** (a) Give any four evidences to show that glucose is aldohexose. **4+2**
(b) Write the structure of Fructose -1, 6- diphosphate. Give its importance.
- 14.** (a) Write the structure of isomaltose and cellobiose. **4+2**
(b) What are Cardioglycosides ? Give an example.
- 15.** (a) What are Glycoproteins ? Give their functions. **4+2**
(b) Explain the structural features of phosphoglycerides as membrane lipids.
- 16.** (a) Describe blood group carbohydrates. **4+2**
(b) Define saponification number and mention its significance.
- 17.** (a) How are lipids classified ? Give an example for each class. **4+2**
(b) Write the importance of hyaluronic acid and haparin.
- 18.** (a) Give the structure of ceramide and sphingomyelin. **4+2**
(b) What are Lectins ? Give their biological importance.
- 19.** (a) Comment on : **4+2**
(i) Cis-trans isomerism in fatty acids.
(ii) Catalytic hydrogenation.
(b) What are zwitter ions ? Give the zwitter ionic form of lysine.
- 20.** (a) Discuss the structural organisation of proteins. **4+2**
(b) Write the structure of phosphatidylserine.
- 21.** (a) What are α -amino acids ? Name and write the structure of amino acid **4+2** containing :
(i) Indole group
(ii) Imidazole group
(b) Peptide bond is a planar bond. Give reasons.



22. (a) 'Primary structure of proteins influences their biological activity'. Explain 4+2
with an example.
(b) Mention any two differences between fibrous and globular proteins.
23. (a) Explain chemiosmotic theory. 4+2
(b) Name any two high energy compound other than ATP.
24. (a) Calculate the standard energy change of the following redox reaction : 4+2
Pyruvate + NADH + H⁺ ⇌ Lactate + NAD⁺
Given : (i) E° of NAD⁺/NADH = -0.32 V
(ii) E° of Pyruvate/Lactate = -0.19 V
(iii) F = 23.06 Kcal mol⁻¹
(b) What are cytochromes ? Give their importance.
25. (a) Compare biological oxidation with combustion. 4+2
(b) What is free energy change ? What does positive and negative ΔG indicate ?