PD-181

FORMAT 7

(571) M.Sc. MICROBIOLOGY (FIRST SEMESTER)
Examination DEC. 2020
Compulsory/Optional
Group-
Paper-

Name/Title of Paper- BIOCHEMISTRY
Time:Three Hours

Maximum Marks- 080
Minimum Passing Marks- ...

नोटः दोनों खण्डों से निर्देशानुसार उत्तर दीजिए । प्रश्नों के अंक उनके दाहिनी ओर अंकित हैं ।

Note:Answer From Both the Section as Directed.The Figures in the right-hand margin indicate marks.

Section-A

1. Answer the following: 1×10

(a) Define standard free energy change (ΔG^0).

(b) Name two non-covalent interactions that stabilize tertiary structures of protein.

(c) What are epimers?

(d) Name two fat soluble vitamins.

(e) Why peptide bond is relatively stronger than that of ester bond?

(f) In which type of enzyme inhibition Vmax decrease and Km remains constant.

(g) Name the monosaccharide units present in lactose and type of glycosidic linkage present in it.

(h) Why unsaturated fatty acid have low melting point?

(i) Synthesis of vitamin D_3 in skin is enzymatic or non-enzymatic process?

(j) Name two inhibitors that inhibit the ATP synthase.

2. Answer the following questions: 2×5

(a) What is ω oxidation?

(b) Discuss the role of UV component of light in Vitamin D_3 synthesis.

(c) What is turnover number (K_{cat})?

(d) Elucidate some basic concept of buffers.

(e) What are amino sugars? Name any two amino sugars.

Section-B

Answer **all** questions: 15×4

3. Discuss functions of different structural and storage polysaccharides in mechanical stability of biological systems.

OR

Write notes on the following:

(a) Explain about inhibition pattern where Vmax remains same and Km increases.

(b) Significance of Km and Vmax in enzyme catalyzed reaction.

4. What are regulatory enzymes? Discuss allosteric modification regulations of enzymes with suitable diagrams.

Write notes on the following:

(a) What do you mean by hydrophobic interaction? How does it help in stabilizing biological systems?

(b) Give an account of catabolism of polysaccharides.

5. Explain the role of electrochemical proton gradient in ATP synthesis with a suitable diagram.

OR

Write notes on the following:

(a) β-oxidation of saturated fatty acid.

(b) Structure and function of Vitamin B_1

6. What are secondary structures of Proteins? Differentiate between α helix and β platted sheet structure explaining significance of Ramachandran plot into it.

OR

Write notes on the following:

(a) Briefly explain different role of oxidoreduction reactions in context to biological system.

(b) Give a short account of chemical constituents of plasma membrane with special reference to lipid bilayer.