

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT
TEST -1 EXAMINATIONS-2022

M.Sc-I Semester (BT)

COURSE CODE (CREDITS): 20MS1BT112 (3)

MAX. MARKS: 15

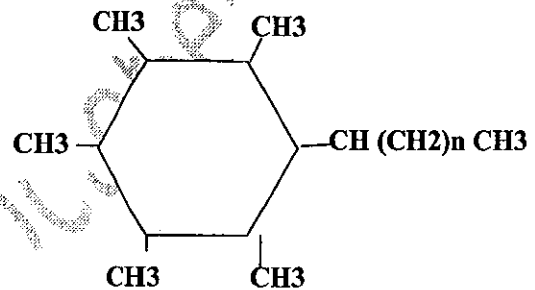
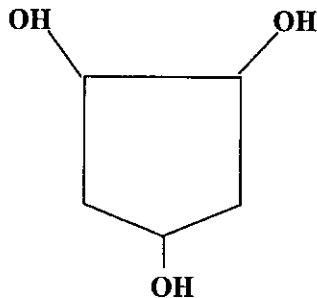
COURSE NAME: Cell and Molecular Biology

COURSE INSTRUCTORS: Dr. Abhishek

MAX. TIME: 1 Hour

Note: All questions are compulsory. Marks are indicated against each question in square brackets.

Q1. A researcher synthesized the following two drug molecule both the drug molecule can cross the plasma membrane of microbes and shows strong antimicrobial activity. Detail out the import mechanism of both these molecule through plasma membrane so that drug molecule can enter into the cell and kill microorganism [5]



Q.2 It can be said that some proteins in the cell membrane are like "icebergs floating in a sea of lipids." These embedded proteins that span the whole width of the membrane and "poke out" on the inside and the outside are called?. Also give your opinion about the permeability of the membrane whether is permeable, impermeable or selectively permeable and detail out how this permeability (permeable, impermeable or selectively permeable) according to your opinion justifies the movement of materials across the membrane? [5]

Q.3 Indicate whether each of the following statements is true or false. If you think a statement is false or true, explain why? [5]

- I. The major lipid present in the membrane of *E.coli* is phosphatidylethanolamine.
- II. Cholesterol modulates the properties of lipid bilayers. When mixed with phospholipids, it may reduce the permeability-barrier properties of the lipid bilayer.
- III. Adipocytes are specialized cells for lipid biosynthesis
- IV. β -barrel proteins are abundant in the outer membranes of bacteria, mitochondria, and chloroplasts
- V. Hydrophathy curve is used to find out the number of hydrophilic domain in proteins