

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

Test-1, Examination- February 2016

B.Tech.- II Semester

COURSE NAME: STRUCTURAL BIOLOGY

COURSE CODE: 10B11BI211

MAX MARKS:15

MAX TIME:1 hr

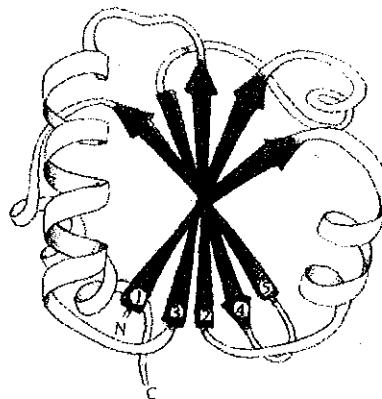
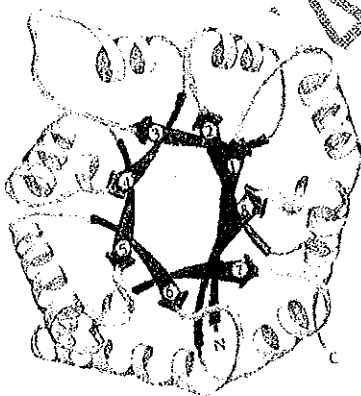
Note: All questions are compulsory. Carrying of Mobile phone during examination will be treated as case of unfair means.

Part A: 0.5 Marks questions (10X0.5 Marks = 5 Marks)

1. What is the one and three letter code for Asparagine, Arginine, and Aspartic Acid?
2. Who coined the term "primary", "secondary", and "quaternary" structure of protein?
3. Linus Pauling coined the term _____ and also was able to predict the structure of _____.
4. What type of interactions predominate the binding of vitamin A in Retinol binding protein?
5. What is the fold symmetry observed in the head region of neuraminidase?
6. Name some of the greek-key motif incorporated protein structures.
7. For the globin fold, _____ and _____ observed the helix-heme contacts.
8. Mutation of _____ to _____ in the sixth position of hemoglobin causes sickle cell anemia.
9. _____ has been attributed as the reason why γ crystalline protein has four greek-key motifs.
10. In pectate lyase and _____ protein, the beta helix has the sequence pattern _____.

Part B: 2 Marks questions (5X2 Marks = 10 Marks)

1. Draw the topology diagrams for the following proteins.



2. Although "motif" and "fold" involve geometrical arrangement of secondary structures, what differentiates them?
3. Assuming the three sequences below form alpha helices, identify which helix is completely buried, partially buried, and completely exposed?
"LSFAAAMNGLA", "KEDAKGKSEEE", and "INEGFDLLRSG"
4. Tabulate the differences between α helix, 3_{10} helix and π helix.
5. How can different amino acid sequences have similar 3D structures? What is the mechanism by which proteins adapt to mutations during evolution?