T.E/V/CBUS/BT/BP . 7/12/15

7/12/15 T.E.-V Sem-Biotehonology

Bio Physics

(23)

QP Code : 5714

(3 Hours) [Total Marks : 80]

N.B. : (1) Question No.1 is compulsory.
(2) Attempt any three questions out of remaining 5 questions.
(3) Draw diagrams/ figure wherever necessary.

1. Write short notes on any four of the following: (5x4=20)

(a) Ionization product of water
(b) Weak interactions
(c) Flip-flop movement
(d) Leucine zipper
(e) Cholesterol
(f) RNA stucture

2. (a) Explain principle of X-ray crystallography and its application in visualising structures of biomolecules. (10)

(b) Describe lipids in detail. (10)

3. (a) Explain advantages and disadvantages of electron microscopy in detail. (10)

(b) What is the significance of peptide bond in protein conformation. Describe Ramachandran plot. (10)

4. (a) Explain term nulear cargo. Describe nuclear transport in detail. (10)

(b) Describe in detail nucleic-acid protein interactions. Give some examples of common DNA-binding motifs. (10)

5. (a) Explain different levels of protein folding. Also describe importance of molecular chaperons. (10)

(b) Explain membrane fluidity. Describe structure of plasma membrane in detail. (10)

6. (a) Describe ^{13}C-NMR in detail. (10)

(b) Explain body buffers. In plasma the bicarbonate concentration is about 0.025 M and the carbonic acid concentration is 0.00125. Determine the pH. (pKa for carbonic acid is 6.1) (10)

MD-Con. 10172-15.