

PG Odd Semester (CBCS) Exam., December—2018

LIFE SCIENCE AND BIOINFORMATICS

(1st Semester)

Course No. : LSBCC-103

(Biochemistry)

Full Marks : 70Pass Marks : 28

Time : 3 hours

The figures in the margin indicate full marks for the questions

1. (a) Discuss the important features of hydrogen bonding and hydrophobic effect with example. 3+3=6
- (b) Mention different chemical interactions contributing to stability of protein structure. 8

OR

2. Write short notes on any *two* of the following : 7×2=14
- (a) Henderson-Hasselbalch equation
- (b) Biological buffer
- (c) Free energy

3. (a) What is enzyme kinetics? Derive Michaelis-Menten equation from a mono-substrate reaction. 2+8=10
- (b) Add a note on coenzymes. 4

OR

4. Write notes on the following : 7×2=14
- (a) Ramachandran Plot
- (b) Enzyme classification
5. (a) Differentiate between oxidative and photophosphorylation. Describe the components of mitochondrial electron transport chain with a suitable diagram. 2+8=10
- (b) Write about the stoichiometry of a ATP synthesis during oxidative phosphorylation. 4

OR

6. (a) With reactions, describe the process of -oxidation. Write about its significance. 6+2=8
- (b) Write about the metabolic significance of pentose-phosphate pathway with reactions. 6

(3)

7. (a) With suitable model, describe the mechanism of photoexcitation during photo-synthesis. 7
- (b) Give an account of the structural components of Light Harvesting Complex (LHC) and photosynthetic electron transport. 7

OR

8. (a) Write about the importance of nitrogenous enzyme with its structure. 5+2=7
- (b) What are major groups of secondary metabolite? Discuss about general scheme for biosynthesis of secondary metabolite. 2+5=7
9. (a) With suitable model, describe how flower development is regulated genetically. 10
- (b) Add a note on biological clock. 4

OR

10. (a) Describe different components of signal transduction in plants. Write a note on molecular mechanism of phytochrome signalling. 4+5=9
- (b) With suitable model, describe the plants response against oxidative stress. 5
