AE-761

M. Sc. (Final)
Term End Examination, 2016-17

CHEMISTRY

Paper - II

Bioinorganic, Bio-organic, Biophysical and Environmental Chemistry

Time : Three Hours] [*Maximum Marks* : 100
[*Minimum Pass Marks* : 36

Note : Answer **five** questions in all, selecting **one** question from each Section and Question No. 9 which is compulsory. The figures in the right-hand margin indicate marks.

Section-A

1. Write a note on chlorophyll. Give an account of Photosystem-I and Photosystem-II in cleavage of water. 20

2. Discuss the structure and function of haemoglobin and myoglobin. Give a detailed note on poisoning towards haemoglobin and myoglobin. 20

Section-B

3. (*a*) Discuss the Fischer's 'lock and key' and Koshland's induced fit hypothesis. 10

(*b*) What do you understand by inhibition ? Explain various types of inhibition of enzymes. 10

4. (*a*) Give a detailed account of structure and mechanism of carboxypeptidase A. 10

(*b*) What is recombinant DNA technology ? Explain its application. 10

Section-C

5. (*a*) Write a note on the mechanism of nerve conduction. 10

(*b*) What is electrophoresis ? Explain the difference between SDS and PAGE electrophoresis with mechanism. 10

6. (*a*) Explain thermodynamically the folding of protein. 10

(*b*) Explain the importance of hydrophobic forces in protein interaction. 10

Section-D

7. Define BOD and COD and differentiate between them. Discuss the experimental procedure for determination of BOD and COD. 20

8. Describe in detail the hydrological cycle and the effect of pollution on it. 20

9. Write short notes on any **three** of the following : 20

(*a*) Purification and treatment of water

(*b*) Structure and function of hemocyanin and hemerythrin

(*c*) Biological nitrogen fixation

(*d*) Nomenclature and classification of enzymes

(*e*) Primary and Secondary structure of protein

(*f*) Mechanism of ion transport through cell membrane

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