AR – 542

Third Semester B. Sc. (Part - II) Examination

ENVIRONMENTAL SCIENCE

Environmental Chemistry

P. Pages : 6

Time : Three Hours] [Max. Marks : 80

Note : (1) All questions are compulsory.
(2) Draw well labelled diagrams.

1. (A) Fill in blanks with proper words :—

(i) In glycoprotein prosthetic group is _____ $\frac{1}{2}$

(ii) Any type of animal or plant material that can be converted into energy is called _____ $\frac{1}{2}$

(iii) The detoxification reactions mainly carried out in _____ $\frac{1}{2}$

(iv) General formula for fatty acid is _____ $\frac{1}{2}$

(B) Choose appropriate answer from the given choices.

(i) Xenobiotics means _____

(a) Metabolism of Amino acids

(b) Metabolism of proteins

(c) Metabolism of carbohydrates

(d) Metabolism of foreign substances. $\frac{1}{2}$

(ii) The number of standard amino acids found in structure of proteins are _____

(a) 15

(b) 30

(c) 20

(d) 25 $\frac{1}{2}$

(iii) A German chemist _____ synthesized DDT.

(a) Einstein

(b) C. V. Raman

(c) S. Thomson

(d) Othmaz $\frac{1}{2}$

(iv) Lead poisoning causes _____

(a) Brain damage

(b) Heart damage

(c) Gastrointestinal disorder

(d) Kidney damage. $\frac{1}{2}$

(C) Answer the followings in **one** sentences.

(i) Define LD_{50} 1

(ii) Define xenobiotics. 1

(iii) What is meant by Bioaccumulation ? 1

(iv) What is the IUPAC Name of DDT ? 1

2. (a) Explain in detail about chemical potential. 4

(b) What is the role of Ca and Cu in plant process ? 4

(c) Explain first and second laws of thermodynamics. 4

OR

(d) Explain the reaction mechanism of acid base reaction. 4

(e) What is the role of Mg and Fe as a trace element in plant process ? 4

(f) What is chemical equilibria ? 4

3. (g) Discuss the biological importance and classification of carbohydrates. 4

(h) Give classification of enzymes. 4

(i) Give the biological significance of Amino acids. 4

OR

(j) What is the importance of lipids ? 4

(k) Mention the classification of proteins. 4

(l) Explain key lock mechanism of enzyme action. 4

4. (m) What are the sources of toxicants ? 4

(n) Explain Biomagnification. 4

(o) What is meant by tc-50 ? Give it's applications. 4

OR

(p) Define toxicology. Add a note on sub-chronic exposure. 4

(q) What is the role of Bioaccumulation in toxicology? 4

(r) What is meant by LD-50 ? Give its applications. 4

5. What are the physiological effects of DDT and synthetic detergents. 12

OR

Define xenobiotics Focus on the mechanism of detoxification. 12

6. Explain in brief :-

(s) Distribution of Mercury. 4

(t) Chemical structure of water. 4

(u) Physical properties of water. 4

OR

(v) Chemical properties of water. 4

(w) Distribution of Pb. 4

(x) Identification of Hg. 4

7. (i) Explain the concept and significance of wind energy. 6

(ii) Describe the mechanism of OTEC. 6

OR

(iii) Describe with diagram solar ponds. 6

(iv) Describe with diagram biogas plant. 6