AT–332

B.Sc. (Part—II) Semester—III Examination

ENVIRONMENTAL SCIENCE

(Environmental Chemistry)

Time : Three Hours] [Maximum Marks : 80

Note :— ALL questions are compulsory and question nos. **2** to **7** carry equal marks.

1. (a) Fill in the blanks with appropriate words and rewrite the sentences :

(i) The proteins secreted by endocrine glands called as _____. ½

(ii) Topical exposure of toxicant should cause _____ toxicity. ½

(iii) The enzymes which catalyses oxidation-reduction are called _____. ½

(iv) Methane is main component of _____ energy. ½

(b) Choose the correct options :

(i) Which of the following biomolecules liberate least amount of energy ?

(a) Carbohydrates

(b) Proteins

(c) Fats

(d) None of the above ½

(ii) A solar cell is made up of :

(a) Silicon

(b) Titanium

(c) Magnesium

(d) Teflon ½

(iii) Which of the following reactions comes under phase-II of detoxification ?

(a) Hydrolysis

(b) Oxidation

(c) Conjugation

(d) Reduction ½

(iv) Which of the following is not a food toxicant ?

(a) Preservatives

(b) Flavouring agents

(c) Colours

(d) CO ½

(c) Answer the following questions in one sentence each :

(i) Give the IUPAC name of BHC. 1

(ii) What are conjugated proteins ? 1

(iii) Define bioremediation. 1

(iv) What are trace elements ? 1

2. Explain in brief :

(a) Chemical potential 4

(b) Hydrogen as a bioelement 4

(c) Ni and Mg as trace elements. 4

OR

(d) Unsaturated hydrocarbons 4

(e) P and Ca as activators and inhibitors 4

(f) Role of oxygen as a biomolecule. 4

3. Explain in brief :

(g) Biological importance of carbohydrates 4

(h) Properties of amino acids 4

(i) Classification of enzymes. 4

OR

(j) Biological importance of fats 4

(k) Structure of glucose 4

(l) Properties of enzymes. 4

4. What are toxicants ? Describe with examples different sources of toxicants. 12

OR

Define biomagnification of xenobiotics. Describe with proper examples biomagnification of pesticides, radioactive substances and metals. 12

5. Explain in brief :

(m) Mode of action and effects of DDT 4

(n) Phase-I reactions of detoxification 4

(o) Types of bioremediation. 4

OR

(p) Mode of action and effects of BHC 4

(q) Phase-II reactions of detoxification 4

(r) Synthetic detergent as a toxicant. 4

6. Describe in detail the chemical structure and physcio-chemical properties of water. 12

OR

What is chemical speciation ? Focus on the distribution and analysis of Hg from water. 12

7. Explain in brief :

(s) Solar collectors 4

(t) Mechanism of hydropower generation 4

(u) Biogas as an energy resource 4

OR

(v) Solar water heater 4

(w) Mechanism of wind power generation 4

(x) Principles of OTEC. 4