B.Sc. Part–II Semester–III Examination
ENVIRONMENTAL SCIENCE
ENVIRONMENTAL CHEMISTRY

Time : Three Hours] [Maximum Marks : 80

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

1. (A) Fill in the blanks :
   (a) Oxygen and _____ are energy exchange elements. ½
   (b) Potassium element comes under activators and _____. ½
   (c) LC_{50} test is used for measuring _____ toxicity . ½
   (d) Mercury Poisoning causes _____ disease. ½

   (B) Choose correct option :
   (e) Solubility of gases in water depends upon _____. ½
      (i) pH
      (ii) Temperature
      (iii) Humidity.
   (f) All enzymes are : ½
      (i) Proteins
      (ii) Fats
      (iii) Lipids.
   (g) DDT is a : ½
      (i) Pesticide
      (ii) Pharma Drug
      (iii) Hormone.
   (h) Oxygen and Hydrogen are : ½
      (i) Energy exchange elements
      (ii) Activators and inhibitors
      (iii) Trace elements.

   (C) Answer in one sentence each :
   (i) What is first law of thermodynamics. 1
   (ii) What is the long form of BHC ? 1
   (iii) What is OTEC ? 1
   (iv) Define enzymes. 1

2. Explain in brief :
   (a) With the help of suitable example describe second law of thermodynamics. 4
   (b) Explain saturated hydrocarbons with suitable example. 4
   (c) Acid base reactions. 4

OR

(d) Oxygen and hydrogen as energy exchange elements. 4

(e) Na as an activator and inhibitor. 4

(f) Mg as trace element. 4

3. Discuss classification, importance and properties of proteins. 12

OR

Discuss classification, working mechanism and properties of enzymes. 12

4. Explain in brief :

(g) Definition and scope of toxicology. 4

(h) Acute toxicity 4

(i) Biomagnification. 4

OR

(j) Sources of toxicants. 4

(k) Chronic toxicity test. 4

(l) Bioaccumulation. 4

5. Explain :

(m) Routes of exposure and modes of action of aldrin. 4

(n) Mechanism of detoxification. 4

(o) Physiological effects of BHC. 4

OR

(p) Routes of exposure and modes of action of DDT. 4

(q) Types of Bioremediation. 4

(r) Definition and types of xenobiotics. 4

6. Explain :

(s) Chemical structure of water 4

(t) Any four physico-chemical properties of water. 4

(u) Distribution of mercury. 4

OR

(v) Chemical speciation of heavy metal Hg. 4

(w) Describe various species of Pb present in water, air and soil. Give its sources.. 4

(x) Analysis of Pb from water. 4

7. Describe working of solar collector and photovoltaic cell with diagram. 12

OR

Describe concept, mechanism and significance of wind energy. 12