

B.Sc. Part-II (Semester-III) Examination
ENVIRONMENTAL SCIENCE
(Environmental Chemistry)
Paper—III

Time : Three Hours]

[Maximum Marks : 80

Note :— ALL questions are compulsory and Question No. 2-7 carry equal marks. Draw well labelled diagram wherever necessary.

1. (A) Fill in the blanks :

- (a) _____ is the main component of biogas. ½
(b) DDT stands for _____. ½
(c) Oxygen and _____ are the energy exchange elements. ½
(d) Skin is made up of _____ protein. ½

(B) Choose the correct alternatives :

- (i) A solar cell is made up of _____. ½
(a) Silicon (b) Titanium
(c) Magnesium (d) Teflon
- (ii) Which of the following is not a food toxicant ? ½
(a) Preservatives (b) Flavouring agents
(c) Colours (d) CO
- (iii) _____ and _____ are activators and inhibitors elements. ½
(a) Na and Ca (b) U and Li
(c) Mg and Co (d) Fe and Ni
- (iv) Which of the following is the Pentose Sugar ? ½
(a) Erythrose (b) Glucose
(c) Ribose (d) Galactose

(C) Answer the following in **ONE** sentence :

- (i) Define OTEC. 1
(ii) What are trace elements ? 1
(iii) What are enzymes ? 1
(iv) Define Biomagnification. 1
2. (a) Explain the factors that affect solubility of gases in water. 4
(b) Describe the role of nitrogen and phosphorus in plants. 4
(c) Mention any four basic differences in saturated and unsaturated hydrocarbon. 4

OR

- (d) Give the properties of bases and acids. 4
- (e) Give the role of Mg and Ca in plant life. 4
- (f) Oxygen as a bioelement. 4
3. (g) Give the classification of carbohydrates. 4
- (h) With the help of diagram explain mechanism of enzyme action. 4
- (i) Explain any four properties of enzyme. 4

OR

- (j) Describe properties of Fatty acids. 4
- (k) Discuss types of proteins. 4
- (l) Explain any four properties of Amino Acids. 4
4. (m) Explain acute and subacute toxicity. 4
- (n) Describe Lethal dose and Lethal concentration. 4
- (o) How will you differentiate bio-magnification and bio-transformation ? 4

OR

- (p) Discuss life cycle test as a chronic toxicity test. 4
- (q) Explain the factors that affect toxicity to human beings. 4
- (r) Explain Bio-Magnification. 4
5. Describe route of exposure, mode of action and physiological effects of aldrin and BHC. 12

OR

- What is detoxification ? Describe the detail mechanism of detoxification. 12
6. Explain structure of water in detail. Discuss in detail physico-chemical properties of water. 12

OR

- What is chemical speciation ? Discuss about speciation of Pb and Hg. 12
7. Explain in brief :
- (s) Solar chimney. 4
- (t) Significance of hydro and wind power as energy resources. 4
- (u) Principles and significance of OTEC. 4

OR

- (v) Mechanism of hydropower generation. 4
- (w) Mechanism of bioalcohol production. 4
- (x) Define renewable energy sources and explain its advantages. 4