

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 :

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|--------------------------------|---|
| (i) Define OTEC. | 1 |
| (ii) What are trace elements ? | 1 |
| (iii) What are enzymes ? | 1 |
| (iv) Define Biomagnification. | 1 |

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|--|---|
| 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