(d) What are Solar Photovoltaics ? Give its principle and limitations. 4

(e) With the help of diagram explain any biogas plant. 4

(f) Give limitations and advantages of wind power generation and name location in Maharashtra. 4

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 :

(a) _____ bond is present in between two water molecules. ½

(b) Comparatively _____ gas is present in water at highest concentration. ½

(c) _____ is the main component of Biogas. ½

(d) _____ is the –log of hydrogen ion concentration. ½

(B) Choose correct option :

(a) Convertion of solar energy to electrical energy is _____.

(i) OTEC

(ii) Photovoltaic

(iii) Hydro power ½

(b) pH of acid is always _____.

(i) Less than τ

(ii) τ

(iii) More than τ ½

(c) The density of water becomes highest at :

(i) 5°C

(ii) 4°C

(iii) 3°C ½

(d) Acid base reaction is _____.

(i) Neutralization

(ii) Hydrolysis

(iii) Reduction ½

5. What are Xenobiotics ? Discuss detoxication reaction in detail. 12

OR

Explain the concept of bio remediation. Discuss its methods and advantages followed by suitable example. 12

6. Explain any four physical properties of water in detail. 12

OR

What is Chemical Speciation ? Discuss about speciation of Pb and Hg. 12

7. (a) Define renewable energy source and explain its advantages. 4

(b) Explain principle involved in OTEC and give its significance. 4

(c) With the help of diagram explain solar water heating system. 4

OR

(C) Answer in **ONE** sentence each :

(a) What is the long form of OTEC ? 1

(b) What are Xenobiotics ? 1

(c) Define LC_{50}. 1

(d) What is the long form of BHC ? 1

2. (a) Explain the factors that affect solubility of gases in water. 4

(b) Describe the role of nitrogen and phosphorous in plants. 4

(c) Mention any four basic differences in saturated and unsaturated hydrocarbons. 4

OR

(d) Give the classification of biologically important elements followed by explanation and example. 4

(e) Give the properties of bases and acids. 4

(f) Give the role Mg and Ca in plant life. 4

3. (a) Give classification of carbohydrates. 4

(b) With the help of diagram explain mechanism of enzyme action. 4

(c) Explain any four properties of enzyme. 4

OR

(d) Describe properties of Fatty Acids. 4

(e) Discuss types of Proteins. 4

(f) Explain any four properties of Amino acids. 4

4. (a) Explain acute and subacute toxicity. 4

(b) Describe Lethal dose and Lethal concentration. 4

(c) How will you differentiate bio-magnification and bio transformation ? 4

OR

(d) What is LD-50 and LC-50 ? 4

(e) Explain the factors that affect toxicity to human beings. 4

(f) Explain Bio-Magnification. 4