April 2025
B.A./B.Sc.
Sixth Semester
DISCIPLINE SPECIFIC ELECTIVE – 3
CHEMISTRY
Course Code: CHD 6.11
(Industrial Chemicals & Environment)

Total Mark: 70   *Pass Mark: 28*
Time: 3 hours

Answer <u>five</u> questions, taking <u>one</u> from each unit.

UNIT–I

1. (a) How would you manufacture hydrogen in large scale/quantity? Give uses and hazards of it.   3+4=7
   (b) Explain with diagram the separation of He and Ne from first fraction. Give three uses of He.   4+3=7

2. (a) Discuss industrial preparation of fluorine. Mention hazards of it.   4+2=6
   (b) What are ultrapure metals? Explain van Arkel method for preparation of very pure metal.   1+3=4
   (c) Mention two uses and hazards of carbon monoxide.   2+2=4

UNIT–II

3. (a) Discuss any one of the major air pollutants mentioning its sources and its adverse effects on human health.   6
   (b) What is acid rain? Give reactions of the formation of acid rain.   2+2=4
   (c) What are particulates? What are the toxic effects of particulates?   2+2=4

4. (a) What is smog? What is the difference between classical and photochemical smog? Discuss the mechanism of formation of photochemical smog.   2+2+4=8
   (b) How can we monitor the presence of CO in the atmosphere?   3
   (c) What is the function of ozone present in the atmosphere?   3

UNIT–III

5. (a) Why measurement of water pollution is important? Explain how you would carry out water sampling for measuring water pollutants.   1+4=5

   (b) What is BOD? Discuss how to carry out the tests.   1+3=4

   (c) What is tertiary water treatment process? Discuss any one method.   1+4=5

6. (a) Discuss the nature and sources of water pollutants with reference to pathogens and plant nutrients.   2½+2½=5

   (b) Write short notes on the disposal of sludge.   4

   (c) Explain the causes and determination of alkalinity of water.   2+3=5

UNIT–IV

7. (a) Write short notes on the incineration of solid waste.   3

   (b) With the help of diagram, explain the reverse osmosis method for the purification of water.   5

   (c) Discuss the textile industrial effluents and their treatment options.   6

8. (a) Discuss the following industrial effluents and their treatment options.   5×2=10
   (i) Dairies
   (ii) Tanning

   (b) Write a brief note on the water quality parameters for drinking water supplies.   4

UNIT–V

9. (a) Write a note each on the following: 2×2=4
   (i) Petrol
   (ii) Hydro energy

   (b) What do you mean nuclear fission and fusion? Explain with an example.   5

   (c) Discuss the importance of biocatalysis in green chemistry and chemical industry.   2½+2½=5

10. (a) Write short notes on the following sources of energy.   2×2=4
    (i) Coal
    (ii) Geothermal energy
(b) What do you mean by nuclear energy? Explain the principle of nuclear reactor.   1+4=5
(c) Explain the nuclear disaster and its management.   5

———————————