Total No. of Printed Pages—6

6 SEM TDC DSE CHM (CBCS) 2 (H)

2022

(June/July)

CHEMISTRY

(Discipline Specific Elective)

(For Honours)

Paper : DSE–6.2

(Industrial Chemicals and Environment)

Full Marks : 53

Pass Marks : 21

Time : 3 hours

The figures in the margin indicate full marks for the questions

1. Choose the correct answer from the following : 1×6=6

(a) The cause of minamata disease is

(i) Hg

(ii) Pb

(iii) Sn

(iv) Fe

(b) The most important agent for ozone layer depletion is

(i) methane

(ii) CFC

(iii) nuclear fallout

(iv) nitrous oxide

(c) Recommended TDS for drinking water is

(i) 600 mg/l

(ii) less than 500 mg/l

(iii) 650 mg/l

(iv) above 650 mg/l

(d) The chemical which protects stomach from hazardous action of HCl is

(i) secretin

(ii) mucous

(iii) bile

(iv) cortisol

(e) Blue energy is

(i) marine power

(ii) wind energy

(iii) solar energy

(iv) geothermal energy

(f) Biotic component of an ecosystem includes

(i) oxygen

(ii) protein

(iii) green plant

(iv) sunlight

2. Answer any *six* questions from the following : 2×6=12

(a) What is borax? Write any two uses of borax.

(b) Briefly describe reverse osmosis method for water treatment.

(c) Discuss about the bio-desulfurization of coal.

(d) What do you mean by a 'food web'?

(e) Write a note on the effluent from dairy industry.

(f) What are the advantages and disadvantages of solar energy?

(g) Describe any two effects of air pollution.

UNIT—I

3. Answer any *two* questions from the following : 3½×2=7

(a) How is potassium dichromate manufactured? Write the uses of it. What is the health effect of it? 1½+1½+½=3½

(b) Describe the steps involved in the manufacture of caustic soda by Castner-Kellner process. Write any one precaution which must be taken during the transportation of caustic soda. 3+½=3½

(c) Explain how sulphuric acid is prepared by contact process. What is oleum? 3+½=3½

UNIT—II

4. Answer any *one* question from the following : 4

(a) Write the different steps involved in the extraction of a metal from an ore. 4

(b) *(i)* What is a flux? Write the role of a flux in metallurgy. 2

(ii) Write a note on Van Arkel method. 2

UNIT—III

5. Answer any *four* questions from the following : 4×4=16

(a) What is an ecosystem? What are the different components observed in a pond ecosystem? 1+3=4

(b) Explain the different causes of arsenic pollution in drinking water.

(c) What are greenhouse gases and greenhouse effect? Discuss the contribution of these gases to global warming.

(d) Discuss about the causes and effects of ozone depletion. 2+2=4

(e) Describe any four methods of industrial waste management.

UNIT—IV

6. Answer any *one* question from the following : 4

(a) What are renewable and non-renewable energy sources? Write briefly about the advantages of renewable energy sources over conventional energy sources.

(b) What is biomass? Explain why biomass is an attractive source of energy.

UNIT—V

7. Answer any *one* question from the following : 4

(a) "Biocatalysis has many attractive features in the context of green chemistry and sustainable development." Explain it, giving four examples.

(b) What is biocatalysis? Discuss the advantages and disadvantages of biocatalysts.

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