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

**2 0 2 2**

( 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 :  $3\frac{1}{2} \times 2 = 7$

(a) How is potassium dichromate manufactured? Write the uses of it. What is the health effect of it?

$$1\frac{1}{2} + 1\frac{1}{2} + \frac{1}{2} = 3\frac{1}{2}$$

(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.

$$3 + \frac{1}{2} = 3\frac{1}{2}$$

(c) Explain how sulphuric acid is prepared by contact process. What is oleum?

$$3 + \frac{1}{2} = 3\frac{1}{2}$$

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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