

SECTION - II

Chemistry

(Maximum marks : 50)

PART - A

(Answer the following questions in one or two sentences.
Each question carries 2 marks)

- | | Marks |
|---|-------|
| I (a) Which cells were used in appolo space programme ? What was the product used for ? | 2 |
| (b) Name the acids present in acid rain. | 2 |

PART - B

(Answer any *two* questions. Each question carries 8 marks)

- | | |
|---|---|
| II (a) Explain the following phenomena with an example :
(i) Sorption (ii) Occlusion. | 4 |
| (b) (i) How can you test whether the given electrolyte is a strong or weak electrolyte ?
(ii) What is the effect of temperature on the electrical conduction of metallic and electrolytic conductors ? | 4 |
| III (a) Represent a daniel cell. Write the electrode reactions and net cell reaction taking place in it. | 4 |
| (b) (i) Rain water normally have a pH of about 5.6, when does it become acid rain ?
(ii) Why is acid rain considered as a threat to Taj Mahal ? | 4 |
| IV (a) Classify plastics based on the method of application and moulding. List their differences with two examples. | 4 |
| (b) Illustrate with two examples :
(i) Saturated and unsaturated organic compounds.
(ii) Isomerism. | 4 |

PART - C

(Answer *one* full question from each unit. Each question carries 15 marks)

UNIT - I

- | | |
|---|---|
| V (a) Compare the characteristics of physisorption and chemisorption. | 4 |
| (b) Rusting of Iron is an electrochemical corrosion :
(i) Give the theory of electrochemical corrosion.
(ii) What is the final product formed after the corrosion of Iron ?
(iii) Coating of Zinc or Tin is preferred to control the corrosion of Iron. Give reason. | 4 |

- (c) Fuel cells are alternate source of energy in future :
- Sketch a $H_2 - O_2$ fuel cell and label the parts. 4
 - List any four advantages of fuel cells. 4
- (d) Copper is conducting as such while copper sulphate is conducting only in molten state or in aqueous solution. Explain. 3

OR

- VI (a) An electrochemical cell is made up of zinc and cobalt with their standard reduction potentials -0.76 V and -0.28 V respectively :
- Select the anode and cathode. 4
 - Write the cell reactions. 4
 - Compute the e.m.f. of the cell. 4
- (b) How are electrochemical cells classified and compare their features with one example each ? 4
- (c) What are antirust solutions and how does it help to reduce corrosion ? 4
- (d) What do you understand by activation of adsorbent and how is it achieved ? 3

UNIT - II

- VII (a) Give one example each for :
- Alicyclic hydrocarbon. 4
 - Benzanoid aromatic compound. 4
 - Heterocyclic compound. 4
 - Branched chain hydrocarbon. 4
- (b) Define the term 'fibre'. How are they classified ? Give one example for each category. 4
- (c) High boiling gasoline fractions are not generally used as a fuel.
- Suggest a remedy for this. 4
 - Explain the process with a suitable example. 4
- (d) Why does green house effect lead to the global warming ? What could be the consequences of global warming ? 3

OR

- VIII (a) Organic compounds are classified based on the functional groups :
- What are functional groups ? 4
 - Which are the functional groups in aldehydes, ketones, amines, ethers ? 4
- (b) What is natural rubber ? How does vulcanization changes the character of natural rubber ? 4
- (c) How are fuels classified based on their occurrence and give two examples each ? 4
- (d) List three techniques generally used in green chemistry to reduce environmental pollution. 3