

**DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/
MANAGEMENT/COMMERCIAL PRACTICE, NOVEMBER – 2024**

ENGINEERING CHEMISTRY II

(Maximum Marks:100)

(Time: 3 Hours)

PART - A

(Maximum Marks : 10)

Marks

I. Answer **all** the questions in one or two sentences. Each question carries 2 marks.

1. State Aufbau principle.
2. What is secondary cell? Give one example.
3. Give the name of monomers in nylon 6,6.
4. Give two examples for primary fuel and secondary fuel.
5. Write sub shell electronic configurations of N(Z=7) and Cl (Z=17)

(5 x 2 = 10)

PART - B

(Maximum Marks: 30)

II Answer **any five** questions from the following. Each question carries 6 marks.

1. Differentiate orbit and orbital.
2. Explain electrochemical theory of corrosion.
3. Explain electrolysis of molten sodium chloride.
4. Explain the unique features of carbon atom.
5. What is the monomer in natural rubber? What are the limitations of natural rubber?
6. Explain acid rain and green house effect.
7. Explain the terms thermal cracking and catalytic cracking.

(5 x 6 = 30)

PART – C

(Maximum Marks: 60)

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

UNIT - I

III (a) What is a chemical bond? Explain the formation of covalent and ionic bonds with suitable examples.

(9)

(b) Explain any three merits and demerits of Bohr's atom model.

(6)

OR

- IV (a) What are quantum numbers? Explain various quantum numbers and their significance. (9)
- (b) Draw the shapes of S and P orbitals. (6)

UNIT – II

- V (a) Explain the principle and working of Daniel cell with diagram. (9)
- (b) Differentiate electroplating and anodizing. (6)

OR

- VI (a) What is a fuel cell? Explain the working of Hydrogen – Oxygen fuel cell. (9)
- (b) Explain electroplating of mild steel spoon with nickel. (6)

UNIT – III

- VII (a) Explain the classification of polymers based on intermolecular forces of attraction between polymer chains with example. (9)
- (b) What is functional group? What are the functional groups present in alcohol and carboxylic acid? (6)

OR

- VIII (a) Explain the composition and uses of soda glass, borosilicate glass and safety glass. (9)
- (b) What are the advantages of optical fibers? (6)

UNIT – IV

- IX (a) Define calorific value of a fuel. Write short note on the following gaseous fuels and compare their calorific values. (9)
- (i) Water gas (ii) Producer gas (iii) gobar gas and (iv) Natural gas
- (b) What are the basic principles of green chemistry? (6)

OR

- X (a) Briefly explain different regions of atmosphere. (9)
- (b) Give any six qualities of a good fuel. (6)
