N21-02056

TED (15/19) - 2004
(Revision-2015/19)

Reg.No.....
Signature.....

DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/ MANAGEMENT/ COMMERCIAL PRACTICE - NOVEMBER-2021

ENGINEERING CHEMISTRY-II

[Maximum marks: 75] (Time: 2.15 Hours)

PART – A

Marks

I. Answer any *three* questions in one or two sentences. Each question carries 2 marks

1. State Aufbau Principle.
2. What is galvanization?
3. What are secondary cells? Give one example.
4. Give any two uses of optical fibres.
5. Name the different regions of the atmosphere. (3 x 2 = 6)

PART – B

II. Answer any ***four*** of the following questions. Each question carries 6 marks

1. (a) Draw the shapes of s and p orbitals (4+2=6)
   (b) Write the electronic configuration of Oxygen (Atomic No.8) and Cl (Atomic No.17)
2. (a) State Faraday's Laws of electrolysis.
   (b) Distinguish between wet and dry corrosion. (4+2=6)
3. (a) Write the functional group of amine, aldehyde, alcohol and ether.
   (b) What is a safety glass? (4+2=6)
4. (a) What is acid rain? What are its consequences?
   (b) Define calorific value of a fuel. (4+2=6)
5. (a) What is a salt bridge? What are its functions?
   (b) Define EMF of a cell. (4+2=6)
6. (a) Write the correct set of quantum numbers for an electron in 2p orbital.
   (b) Explain hydrogen bond with an example. (4+2=6)
7. (a) Distinguish between thermoplastics and thermosetting plastics. (4+2=6)
   (b) What is catenation? (4 x 6= 24)

PART – C

Answer ***any of the three units*** from the following. Each full question carries 15 marks

UNIT –I

III. (a) What do you mean by dual nature of matter? An electron is associated with a wavelength of 5 nm. Calculate the velocity of the electron. ($h=6.63x10^{-34}$ JS, Mass of electron $=9.1x10^{-31}$Kg) (5)

(b) Write the merits and demerits of Bohr's model of atom. (5)

(c) Illustrate the formation of Ionic bond and covalent bond with an example. (5)

OR

IV. (a) Differentiate between orbit and orbital. (5)

(b) Explain Octet rule by taking NaCl as example. (5)

(c) What are quantum numbers? Explain their signification. (5)

UNIT-II

V. (a) Distinguish between metallic and electrolytic conductors. (5)

(b) Define electrolysis. Explain the electrolysis of aqueous NaCl. (5)

(c) Describe any two methods employed for the prevention of corrosion. (5)

OR

VI. (a) Explain the working of Daniel cell with labelled diagram. (5)

(b) Differentiate between electroplating and anodizing. (5)

(c) Explain the electrochemical theory of corrosion. (5)

UNIT-III

VII. (a) Distinguish between saturated and unsaturated compounds. (5)

(b) What is vulcanization? What are its advantages? (5)

(c) Mention any five characteristics of refractories. (5)

OR

VIII. (a) Distinguish between organic and inorganic compounds. (5)

(b) Explain the classification of polymers based on the type of polymerisation? Give one example for each. (5)

(c) Write the monomers of the following polymers
(i) Nylon 6,6 (ii) Buna-S (iii) Teflon (iv) PVC (v) Bakelite (5)

UNIT-IV

IX. (a) Explain Ozone depletion and its consequences. (5)

(b) What are the qualities of a good fuel? (5)

(c) Distinguish between classical smog and photochemical smog. (5)

OR

X (a) Compare solid, liquid and gaseous fuels. (5)

(b) What do you mean by greenhouse effect? Give any three consequences. (5)

(c) What is soil pollution? Write and three remedial measures. (5)
