APPLIED CHEMISTRY-I
1st/Common/2555/0451/Nov'15

Duration: 3hrs   **M. Marks=75**

SECTION-A

Q.1(A)1Fill in the blanks   1x8=8
(i) Dimensional formula of Density is _____
(ii) A balanced chemical equation always obey the law of_____
(iii) The shape of p-orbital is like _____
(iv) Proton is _____ times heavier than electron.
(v) _____ hardness of water can be removed by boiling.
(vi) Blood is a _____ solution.
(vii) Reducing agents_____ electrons.
(viii) The functional group of aldehyde is_____

(B)State True or False   1x7=7
(i) Ions are neutral particles.
(ii) No two electrons can have same set of four quantum numbers.
(iii) Horizontal rows are called columns.
(iv) Sodium hydroxide is a weak electrolyte.
(v) Ethylene is unsaturated in nature.
(vi) Permutit is an artificial zeolite.
(vii) Water is strongly dissociated into ions.

SECTION-B

Q.2 Attempt any TEN questions   10x3=30

(i) What information is conveyed by a chemical equation?
(ii) Calculate the actual mass of one molecule of water.
(iii) What are the successes of Bohr's model of atom?
(iv) Explain covalent bond with examples.
(v) What are periods, groups and magic numbers?
(vi) Explain scale and sludge formation.
(vii) Give characteristics of drinking water.
(viii) Explain open, closed and isolated system.
(ix) Calculate the pH value of 0.001 M HCL.
(x) Define an indicator, titration and end point.
(xi) Explain the working of dry cell.
(xii) What are electrolytes and non electrolytes?
(xiii) Give the common and IUPAC NAMES of compounds (i) CH_3CHO (ii) C_2H_5OH (iii) CH_3COCH_3

SECTION-C

Q. 3Attempt any THREE questions   3x10=30

(i) (a) Define Ionic bond. What are the factors favouring the formation of ionic bond?   5
     (b) Balance the following equation by hit and trial method.   5
$$Fe + H_2O \longrightarrow Fe_3O_4 + H$$
(ii) (a) State and explain Pauli's Exclusion Principle and Aufbau Principle.   5

    (b) Explain SP, SP^2, SP^3 hybridization.   **5**

(iii) **(a)** A sample of hard water is found to contain 285mg of $MgCL_2$/L. What will be its
        hardness in ppm? (Mg =24, CL= 35.5, O=16, C=12)   **5**

    (b) What is a buffer solution? Explain the types of buffer solution   **5**

(iv) **(a)** How will you remove hardness of water by permutit process?   **5**

    (b) Differentiate between reversible and irreversible reactions.   **2**

    (c) Explain the process of electroplating.   **3**

(v) **(a)** Differentiate between alkene and alkyne.   **5**

    (b) Explain catenation as a property of carbon.   **3**

    (c) What is direct and indirect redox reaction?   **2**