S.B. Roll No……

APPLIED CHEMISTRY-1

1ST EXAM/Common/2555/0451/5404/May 15

Duration: 3hrs **Max. Marks:75**

Note: Attempt all questions.

SECTION-A

A. Fill in the blanks. Each question carries one mark. (1x10=10marks)

1) The chemical formula of ferric sulphate is _____.
2) A chemical equation in which heat is absorbed is called _____ reaction.
3) Proton was discovered by _____.
4) Number of orbitals in d subshell is _____.
5) Water is a _____ solvent.
6) Permanent hardness of water is due to sulphate and chlorides of_____.
7) The substance which shows the end point during titration is called_____.
8) Degree of ionization_____ with dilution.
9) Reduction involves_____ of electron.
10) Reaction in which oxidation and reduction take place_____ is called _____ reaction.

B. State True or False. Each question carries one mark. (1x5=5 marks)

1) An electrolyte allows electricity to pass through it when in fused state.
2) A solution whose pH value is 10 is acidic.
3) Sterilization of water is generally done by chlorination.
4) The two electrons that occupy a bonding orbital must have opposite spins.
5) Valency is the donating capacity of an element.

SECTION-B

Attempt any ten questions. Each question carries three marks. (3x10=30 marks)

1) Calculate the number of atoms and gram atoms in 2.3 gm of sodium.
2) Explain thermochemical equations.
3) Differentiate between compound and mixture.
4) State a) Pauli's Exclusion Principle b) Aufbau Principle
5) Differentiate between temporary and permanent hardness of water.
6) What are anion exchange resins?
7) State Le- Chatelier's principle
8) What are spontaneous and non spontaneous processes? Give one example of each.
9) Define acid and base according to Lewis concept.
10) Differentiate between Direct and Indirect redox reactions.
11) Explain electroplating by giving examples.
12) State and explain Faraday's 1st law of electrolysis.
13) How would you account for tetra covalency of carbon?

Section-C

Attempt any three questions. Each question carries ten marks. (10x3=30 marks)

1. a) Give the main features of Bohr's model of atom. (5)
   b) An electron is in 3d orbital. What possible values of quantum numbers n,l,m and s can it have? (3)
   c) Differentiate between sigma and pi bond. (2)
2. a) Name the different blocks of element in the long form of periodic table. Give the general electronic Configuration of each block (5)

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b) Define Hybridisation. Explain sp^3 Hybridisation (5)

3. (a) Write chemical formulas of following compouns:

i) Ethanol ii) Acetic acid iii) Acetone iv) Acetaldehyde v) Acetylene vi) Ethane vii) Formaldehyde (7)

(b) Explain the concept of homologous series (3)

4. a)Explain working of Dry cell . (5)

b) Calculate the number of molecules in 112 ml of N_2 at N.T.P. . (3)

c) Define molarity (2)

5. a)Define buffer action . Discuss the buffer action of acidic buffer. (5)

b) How will you explain the formation of scales and sludge? Describe the measure to prevent it (5)