BSC. PART - II EXAMINATION - 2016

CHEMISTRY SUBJECT

Answer six questions in all, selecting at least one from each Group in which Q.No.1 is compulsory.

1. Choose the correct answer of the following questions :

(a) Radioactivity is an example of reaction of :
(i) First order (ii) Second order (iii) Third order (iv) Zero order

(b) Standard electrode potential of Hydrogen Electrode is :
(i) Poitive (ii) Negative (iii) Zero (iv) ∞

(c) For water PH + POH is :
(i) 7 (ii) 12 (iii) 14 (iv) 15

(d) $\psi^2 = 1$ is called :
(i) Orbit (ii) Sub-orbit (iii) Orbital (iv) Sub-orbit

(e) For 4th obrit number of orbitals are :
(i) 16 (ii) 32 (iii) 14 (iv) 10

(f) Hybrid orbital present in HCl is :
(i) Linear (ii) Trigonal (iii) Tetrahedral (iv) None of these

(g) Bond order of Di-oxygen is :
(i) One (ii) Two (iii) Three (iv) Zero

(h) Formula of oxalic acid crystal is :
(i) $H_2C_2O_4$ (ii) $H_2C_2O_4\ 2H_2O$ (iii) $H_2C_2O_4\ 4H_2O$ (iv) $H_2C_2O_4\ 7H_2O$

(i) Silver mirror test is given by :
(i) Ethanol (ii) Acetamide (iii) Formic Acid (iv) Aniline

(j) Types of Hybridisation shown by Carbon are :
(i) One (ii) Two (iii) Three (iv) Four

GROUP-A

2. Explain melecularity and order of reaction. Derive an expression for rate constant of a first order reaction. Find the unit of rate constant.
3. Derive Nernst equation for electrode potential. Describe the use of e.m.f measurement for determination of valency of ions.
4. What is natural radioactivity ? Mention properties of radioactive rays. Explain Group displacement law.
5. Write short notes on any two of the following :
(a) Brownian motion (b) Electrophoresis (c) Buffer solution
(d) Isotope and Isobar

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GROUP - B

6. Describe the preparation of Potassium dichromate ? How does it react in acidic medium with Oxalic acid and Hydrogen sulphide gas ?
7. Write two ores of Cobalt. Describe its principle of extraction. Write one use of cobalt nitrate solution.
8. Write electronic configuration of Fe. Cr. Cu and V. Find its group and period in periodic table.
9. Write notes on any two of the following :
   (a) Xenon compounds (b) Hydrazene (c) Hybridisation (d) Bond energy

GROUP - C

10. How citric acid is prepared from lemon juice ? How it reacts with Hydrogen iodide and sulphuric acid ?
11. Bring about the following four conversions :
    (a) Benzene to Benzene diazonium chloride (b) Phenol to Benzene (c) Toluene to benzoic acid (d) Nitro benzene to phenol (e) Benzene sulphonic acid to Phenol (f) Benzoic acid to benzamide
12. Write open chain structure of Glucose and Fructose. How it is converted vice-versa? How does glucose reacts with Tollen's reagent and Fehling's solution ?
13. Write short notes on any two of the following :
    (a) Friedel Craft reaction (b) Perkin reaction (c) Sandmeyer's reaction (d) Optical isomerism

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