(A-9) Seat NO: _____ No. of Printed Pages : 2

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SARDAR PATEL UNIVERSITY

B. Sc. (SEMESTER-V) EXAMINATION

Friday, 13th May 2016

10.30 a.m. to 1.30 p.m.

Subject: INORGANIC CHEMISTRY (US05CCHE04)[CBCS](NC)

Note: 1. All questions are to be attempted. **Total Marks: 70**

2. Figures to the right indicate full marks.

Q:1 Answer the following multiple choice questions: [10]

(i) Which of the following is not hard base?

(a) NO_2^- (b) NO_3^- (c) NH_3 (d) $CHCOO^-$

(ii) _____ solvents have hydrogen atom in their formula.

(a) Acidic (b) Protonic (c) Protogenic (d) Protophilic

(iii) The binary compounds of carbon with N, P, O, S and halogen are called _____.

(a) hydrolysis (b) carbides (c) nitrides (d) azides

(iv) Soap is the _____ salt of higher fatty acid.

(a) potassium (b) calcium (c) sodium (d) magnesium

(v) Heavy water is prepared at present by the _____ of water containing alkali.

(a) exhaustive electrolysis (b) exhaustive distillation

(c) ion-exchange technique (d) boiling

(vi) The glass which contain about _____ % silica is called high silica glass.

(a) 85% (b) 90% (c) 96% (d) 99%

(vii) A common brick is the example of _____.

(a) structural ceramic (b) earthenware (c) stoneware (d) pottery product

(viii) Two or more simple molecules of the same substance polymerize and form a polymer of same empirical formula is known as _____ polymer.

(a) Addition (b) Homoatomic (c) Condensation (d) Coordination

(ix) A_____ is a mixture of equal proportion of linear and cyclic polymers.

(a) Silicon resin (b) Silicon rubber (c) Silicon fluid (d) High thermal silicon

(x) The molecular formula of inorganic rubber is _____.

(a) $[NPCl_2]nPCl_5$ (b) $N_3P_3(NH_2)_6$ (c) $(N_4P_4Cl_8)$ (d) $[NPCl]_n$

Q:2 Short questions:(Any Ten): [20]

(i) HCl does not behave as an acid in solvent benzene.

(ii) Give the limitations of Lewis concept.

(iii) Give the neutralization reaction taking place in liquid Sulphur dioxide.

(iv) Discuss the general properties of carbides.

(v) Define the term "Potable water".

(vi) Discuss the manufacture of hydrogen peroxide by electrolysis.

(vii) Give the physical properties of glass.

(viii) Discuss the composition of sodalime glass with its uses.

(ix) Discuss mechanical properties of ceramics.

(x) Write the general properties of inorganic polymers.

(xi) Give the preparation of dimethyl silicon oil.

(xii) Give all possible structures of imides of sulphur.

(P.T.O)

Q:3 (a) Explain Pearson's concept of hard and soft acid and base with suitable examples. **[05]**

(b) Write a note on: Ammonation reactions and formation of ammoniates. **[05]**

OR

Q:3 (a) Give brief account on Arhenious acid-base concept with its utility and limitations. **[05]**

(b) Discuss the advantages and disadvantages of using liquid NH_3 as solvent. **[05]**

Q:4 What are carbides? Discuss any two types of carbides in detail. **[10]**

OR

Q:4 Discuss Permutit process and Ion-exchange method for the removal of hardness. **[10]**

Q:5 (a) Discuss the chemical properties of glass. **[05]**

(b) Write note on: (i) Safety glass (ii) Optical glass **[05]**

OR

Q:5 (a) Write note on: Annealing of glass strain. **[05]**

(b) Write a note on application of colour to pottery. **[05]**

Q:6 (a) Give the brief account on boron nitride. **[05]**

(b) Write notes on imides of sulphur. **[05]**

OR

Q:6 (a) Give the brief account on white graphite. **[05]**

(b) What are silicones? Write properties and uses of silicones. **[05]**

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