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Seat No. _____

B. Sc. (Sem. II) (CBCS) Examination

April - 2022

Chemistry - C-201

(New Course)

Time : $2\frac{1}{2}$ Hours] [Total Marks :**70**

Instruction : Answer any five questions out of ten.

1 (a) **14**

(a) Give isomerph of NqF. **4**

(b) Limiting Radius Ratio for triangular geometry is _____.

(c) What are ligands ?

(d) Give the geometry of HgI_3^-

(b) Give examples and structure for Body centered cubic arrangement. **2**

(c) Derive r^+/r^- in trigonal structure. **3**

(d) Explain the characteristics of ionic solids. **5**

2 (a) **14**

(a) Which metals are more malleable and ductile ? CCP or HCP ? **4**

(b) Primary valency is also known as _____.

(c) Give two examples of bidented ligands.

(d) Conversion of gaseous Cl into Cl^- is _____ process.

(b) Draw Cis and trans structure for $[Pt\ (NH_2.CH_2COO)_2]$ **2**

(c) Discuss co-ordination No 4 and 5. **3**

(d) Discuss geometrical isomerism in Six co-ordinated compounds.

3 (a) **14**

(a) Define transition elements. **4**

(b) Which 3-d series element has maximum numbers of oxidation states ?

(c) Define unit cell.

(d) Give full form of FCCL.

(b) Give oxidation states of Mn and Zn. **2**

(c) Define catalytic properties of first transition series. **3**

(d) Calculate spin only magnetic momentum of $[NiCl_4]^{-2}$ and $[FeF_6]^{-4}$ **5**

4 (a) **14**

(a) Give symbol, Atomic No. and electronic contiguration of copper. **4**

(b) _____ is used as catalyst in contact process for manufacture of H_2SO_4

(c) Define ortho rhombic system.

(d) NaCl is also known as _____.

(b) Give only main types of cubic lattice. **2**

(c) Give difference between crystalline and amorphous solids. **3**

(d) Explain rotating crystal method for analysis of crystal. **5**

5 (a) **14**

(a) Give structure for 1, 1-Dimethyl cyclopentane. **4**

(b) Give structure for 3-cyclohexenol.

(c) Give IUPAC name for 

(d) Give IUPAC name for 

(b) Give the reactions of cyclopropane and cylcobutane with halogen acids. **2**

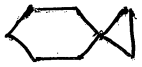
(c) Explain Perkin's methods for preparation of cycloalkanes. **3**

(d) Discuss Baeye's strain theory. **5**

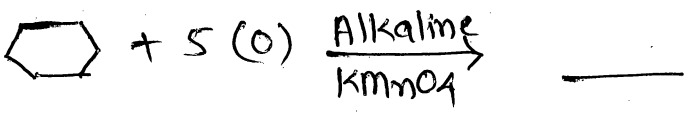
6 (a) **14**

(a) Give structure for 1, 3-cyclopentadiene. **4**

(b) Give structure for 3-methylcyclohexanone.

(c) Give IUPAC name for 

(d) Complete the following reaction



(b) Give structure for : **2**

(1) Bicyclo[3, 2, 0] heptane.

(2) Bicyclo[2, 2, 1] heptane.

(c) Discuss Dieckmann's method for Preparation of cyclo alkane. **3**

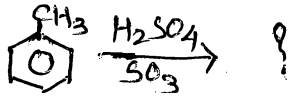
(d) Explain conformational analysis of ethane. **5**

7 (a) **14**

(a) What are the benzenoid compounds ? **4**

(b) Give structure for tropylium ion.

(c) What are the activiting substituents ?

(d) Complete the reaction 

(b) Discuss stability of benzene in short. **2**

(c) Explain Huckel's rule. **3**

(d) Explain electrophylic aromatic substitution reaction of benzene with mechanism. **4**

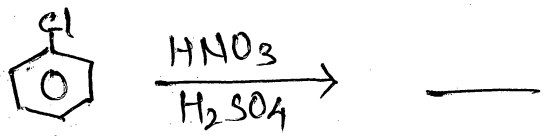
8 (a) **14**

(a) What are non-benzenoid aromatics ? **4**

(b) What are annulenes ?

(c) What are deactivating substituents ?

(d) Complete the following reaction



(b) Discuss aromaticity in short. **2**

(c) Explain effect of halogen substituents. **3**

(d) Explain Friedel-Craft alkylation and acylation. **5**

9 (a) **14**

(a) Give examples of two bases which do not contain OH^-.

(b) Define strong electrolytes.

(c) Define sparingly soluble salt.

(d) Give an example of acidic buttery solution.

(b) What is pH scale ? **2**

(c) Write a note on buffer solution. **3**

(d) Explain common ion effect with suitable example. **5**

10 (a) **14**

(a) The cation Ag^+, Pb^{+2}, Hg^{+2} are separated by _____.

(b) Give an example of salts of weak acid and weak base.

(c) Give an example of basic buffer.

(d) Write equation of Henderson-Hasselbalch for acidic buffer solution.

(b) Explain buffer capacity. **2**

(c) Discuss ionic product of water. **3**

(d) Give the application of solubility product principle in detail. **5**