Khatra Adibasi Mahavidyalaya

B.Sc. Hons. Examination 2020, Semester - IV

Internal Assessment

Subject - Chemistry, Paper Code - T8 (Physical Chemistry)

F.M. - 10 Time - 30 min

- Answer any three of the following: 2×3=6

1) a) What is meant by triple point of water? why it is different from the normal melting point of ice? (1+1)

b) What is meant by 'critical Solution temperature'? Cite an example of a binary liquid System have two CST. (1+1)

c) Define the terms in context with phase rule:
i) number of Components & (1+1)
ii) degree of freedom.

d) Criticize or Justify: A eutectic has a definite Composition and sharp melting point, yet it is not a Compound. (m=2)

- Answer any one of the following:- 4×1=4

2. a) Apply phase rule to determine the 'degree of freedom' for a binary alloy System at the 'eutectic point' and for a partially miscible pair at the 'critical Solution temperature'. (1)

b) i) Draw the temperature - Composition (mole fraction) curve of a System of two partially miscible liquids, for example phenol & water.

ii) Is there any effect of addition of a little NaCl to the System? 3+1.

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Internal Assessment

Subject- Chemistry, Paper Code- T9 (Inorganic Chemistry)

F.M. – 10 **Time – 30min**

1. **Answer *any three* of the following:** **3 × 2 = 6**
   a. Define innocent and non-innocent ligand and cite one example each.
   b. Write down IUPAC nomenclature of the following complexes:
   $NH_4[Cr(NCS)_4(NH_3)_2]$ and $[CoCl(H_2O)(NH_3)_4]Cl_2$
   c. Draw the structure of XeO_4 considering VSEPR theory.
   d. Why BH_3 exists as dimer but BF_3 as monomer?

2. **Answer *any one* of the following:** **1 × 4 = 4**
   a. Why XeF_6 is distorted octahedral but $TeCl_6^{-2}$ is a regular octahedral, although they are isoelectronic?
   b. Define ambidentate ligand with two examples and its characteristics.

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Internal Assessment

Sub - chemistry, paper code - T 10 (organic chemistry)

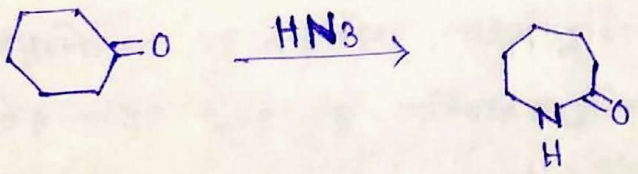
F.M - 10

1. Answer the following questions: (2×5 = 10)

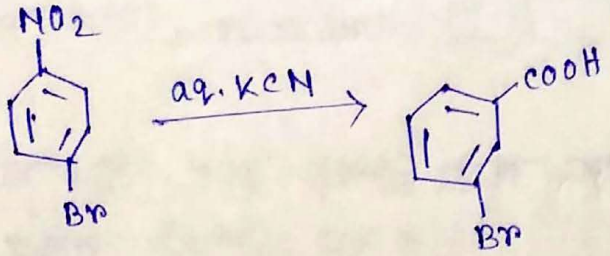
a) Define Synthon and giver an example. (2)

b) Trace the pathway for the formation of 4,4-dimethyl-2-cyclohexenone from methyl vinyl ketone and an appropriate aldehyde. (3)

2. a) Complete the reaction with mechanism: $(2\frac{1}{2} + 2\frac{1}{2})$



b)



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B. Sc. Hons. Examination 2020, Semester- IV

Internal Assessment

Subject- Chemistry, Paper Code- SEC T2 (Pharmaceuticals Chemistry)

F.M. – 10 **Time – 30min**

1. **Answer *any three* of the following:** **3 × 2 = 6**
   a. Define antipyretic compound and cite an example.
   b. How will you convert phenol to paracetamol?
   c. Define antibiotic compounds and cite an example.
   d. Write down one example of antiviral agent and cite one use.

2. **Answer *any one* of the following:** **1 × 4 = 4**
   a. Starting from phenol describe a preparatory method for aspirin via salicylic acid and cite one use.
   b. Write down four differences between aerobic and anaerobic fermentation.
