**ST. JOSEPH’S COLLEGE (AUTONOMOUS), BENGALURU-27**

B.Sc CHEMISTRY: IV SEMESTER

SEMESTER EXAMINATION: APRIL 2018

 **CH- 415: Chemistry**

Note : The question paper has **two printed pages** and **three parts**.

All parts are compulsory.

Time : 11/2 hrs Max .Marks : 35

**Part A**

Answer any **three** of the following. **3 x 2 = 6**

1. Give the formulae of Caro’s acid and Marshal’s acid.
2. What are interhalogen compounds ? Give an example
3. Give an example each for nonbenzenoid and heterocyclic aromatic compounds.
4. Compounds of oxygen are more ionic in nature compared to other elements in the

 16 th group. Give reason.

1. How do you convert toluene to benzyl chloride? Write chemical equation.

**Part B**

Answer any **four** of the following. **4 x 6 = 24**

1. a) Which of the following is a reducing agent? H3PO2 or H3PO4 ? Give reason.

 b) Nitrogen does not form compounds such as NF5 and NCl5. Why? **(3+3)**

1. a) With the help of VBT explain the structure of ICl4-.

 b) Using hybridization concept deduce the structures of XeF4 and XeO3F2  **(3+3)**

1. a) With the help of energy level diagram explain the working of a catalyst.

b) Explain intermediate complex formation theory for homogeneous catalysis with a suitable example. **(3+3)**

1. Sketch and explain the phase diagram of Pb - Ag system.

1. a) Define degrees of freedom with respect to a system. Calculate the number of degrees of freedom for glucose solution.

 b) Give the mechanism for nitration of benzene. **(3+3)**

1. a) What are catalytic promoters? Give an example.

b) Classify the following as aromatic, antiaromatic or nonaromatic compounds and

give reasons.

.

   

 i ii iii **(2+ 4)**

**Part C**

Answer any **one** of the following**. 1 x 5 = 5**

1. Using Grignard regent how do you convert formaldehyde (methanal) to 1-butanol.

Write the chemical equations for the conversion.

1. Benzene on treating with ethyl chloride in the presence of aluminum chloride a product (**A)** was obtained which on heating with alkaline KMnO4 and acid hydrolysis a white solid **(B)** was obtained. Identify the compounds **A** and **B** and write the chemical equations.

-------------------------------------------------------------------------------