Code No. 7109 / E

# FACULTY OF SCIENCE

**B.Sc. IV-Semester (CBCS) Examination, May / June 2018**

**Subject : Chemistry**

**Paper - IV**

**Time : 3 Hours** **Max. Marks: 80**

## SECTION – A (5 x 4 = 20 Marks)
## (Short Answer Type)

**Note : Answer any FIVE of the following questions.**

1 Write the names of the following coordination compounds
(a) $[Co(NH_3)_4Cl_2]Cl$ (b) $K_3[Fe(CN)_6]$ (c) $[Pt(en)_2Cl_2](NO_3)_2$ (d) $[Pt(NH_3)_4Cl_2]$

2 Discuss the classification of organometallic compounds with examples.

3 Why are carboxylic acids stronger acids than phenols? Explain.

4 Give any two methods for the preparation of nitro alkanes.

5 The conductivity of a solution containing 1 gram of anhydrous $BaCl_2$ in 200 ml of water has been found to be 0.0058 mho $cm^{-1}$. What are the molar conductivity and equivalent conductivity of the solution ? (mol. Wt of $BaCl_2$ = 208).

6 Describe hydrogen electrode.

7 What is stereospecific reaction? Explain with one example.

8 Explain about electrocyclic reactions.

## SECTION – B (4 x 15 = 60 Marks)
## (Essay Answer Type)

**Note: Answer all questions from the following.**

9 (a) Discuss the formation of $[Ni\ Cl_4]^{2-}$, $[Cu\ (NH_3)_4]^{2+}$ and $[Fe(CN)_6]^{3-}$ on the basis of valence bond theory (VBT).

**OR**

(b) (i) Explain any three preparative methods of ferrocene.
(ii) What is 18 valence electron rule? Explain with two examples.

10 (a) Write a note on :
(i) Huns Diecker reaction
(ii) Schmidt reaction
(iii) Hell-Volhard – Zelensky reaction

**OR**

(b) (i) How will you obtain methyl ethyl ketone from acetoacetic ester?
(ii) Write the reduction reactions of nitrobenzene in alkaline medium.

11 (a) (i) How will you determine the transport number of an ion by Hittorf's method?

(ii) A solution of silver nitrate containing 12.14g of silver in 50 ml of solution was electrolylsed between platinum electrodes. After electrolysis, 50 ml of the anode solution was found to contain 11.55 g of silver, while 1.25 g of metallic silver was deposited on the cathode. Calculate the transport number of $Ag^+$ and $NO_3^-$ ions.

**OR**

(b) (i) Discuss about potentiometric titrations.
(ii) What are the salient features of Arrhenius theory?

12 (a) Write retrosynthetic analysis of acetophenone and cyclohexene.

**OR**

(b) (i) Give the molecular orbitals of ethene and 1, 3 – butadiene.
(ii) What is diastereo selective reaction? Explain with one example.

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