Roll No. ....

91559

B. Sc. (Hons.) Mathematics 2nd Sem. Latest

Examination – April, 2018

CHEMISTRY-II opt. (ii)

Paper : BHM-125

Time : Three Hours] [Maximum Marks : 60

Note : Attempt five questions in all, selecting not more than two questions from each Section.

SECTION – I

1. (a) Give reason why ?

   (i) Electron affinity of chlorine is more than fluorine. 5

   (ii) CO_2 is a gas while SiO_2 is a solid.

   (b) Compare acidic character of oxyacids of chlorine. 4

   (c) Define electronegativity. Discuss variation of electronegativity in a group. 3

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9. (a) Distinguish between SN^1 and SN^2 reactions. 3

   (b) Why aryl halides are less reactive than alkyl halides ? 5

   (c) Write mechanism of sulphonation of benzene. 4

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2. (a) Explain structure of diborane. 3

(b) What is diagonal relationship and its cause ? Explain taking example of *Li & Mg*. 5

(c) Write name, chemical formula & structure of two oxyacids of nitrogen. 4

3. (a) What are the carbides ? Describe its types giving example. 5

(b) Draw structure of sulphurous acid and sulphuric acid. 3

(c) Arrange different hydrides of Group 17 in order of decreasing acidic strength giving reason. 4

SECTION – II

4. (a) Discuss the effect of temperature and concentration on rate of a reaction. 4

(b) Define order of a reaction. Describe *two* methods for determining order of a reaction. 5

(c) The rate constant of reaction is $2.46 \times 10^{-5} \ sec^{-1}$ at 273 K and $1.63 \times 10^{-5} \ sec^{-1}$ at 303 K. Calculate energy of activation of reaction. 3

5. (a) Derive Ostwald's dilution law. Write its limitations. 4

(b) Give elementary treatment of Debye Huckel Onsager equation. 3

(c) Define specific conductance, molar conductance and equivalent conductance. Write their units. 5

6. (a) Draw and explain conductometric titration curve for : 5

    (i) *HCl* Vs. *NaOH*

    (ii) CH_3COOH Vs. *NaOH*

(b) Derive integrated rate equation for a first order reaction. 3

(c) Define Kohlrausch's law. Why is it called law of independent migration of ions ? 4

SECTION – III

7. (a) Explain dehydrohalogenation of alkyl halides to form alkenes using saytzeff rule. 3

(b) Define aromatic, anti-aromatic and non-aromatic compounds giving one examples of each. 6

(c) Explain Markownikoff's rule with example. 3

8. (a) Define Isolated conjugated or cumulated diene giving one example of each. 6

(b) Why terminal alkynes are acidic in nature ? Explain giving suitable example. 3

(c) Write IUPAC name of : 3

    (i) $CH_2 = C = CH_2$

    (ii) $CH_2 = CH - CH = CH - CH = CH_2$

    (iii) $CH_2 = CH - CH_2 - CH_2 - CH = CH_2$