

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

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

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

SECTION – I

- 1. (a) Give reason why ? 5
 - (i) Electron affinity of chlorine is more than fluorine.
 - (ii) CO₂ is a gas while SiO₂ 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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- 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 $2.46 \times 10^{-5} \text{ sec}^{-1}$ at 273 K and $1.63 \times 10^{-5} \text{ sec}^{-1}$ 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

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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. 4
- (c) Define Kohlrausch's law. Why is it called law of independent migration of ions ? 3

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) $CH_2 = CH - CH_2 - CH_2 - CH = CH_2$

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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