

8. (a) What is Aromaticity ? Explain the Huckel Rule of aromaticity. Discuss aromatic structure of benzene. 6
- (b) Discuss Diels Alder reaction. 3
- (c) How do you explain the acidic nature of C-H bond in acetylene ? 3
9. (a) Discuss SN^1 and SN^2 substitution reaction with example. 4
- (b) What are addition-elimination and elimination-addition reaction ? Explain with example. 4
- (c) Explain why an alkyl halides are more reactive than vinyl chloride ? 4

Roll No.

91559

**B. Sc. 2nd Sem. (Mathematics) (Hons.) Old
& New Examination – May, 2016**

CHEMISTRY - II Opt (ii)

Paper : BHM-125

Time : Three Hours] [Maximum Marks : 60

Before answering the question, 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. All questions carry equal marks.

SECTION - I

1. (a) What is ionization energy ? Why nitrogen have higher ionization energy than oxygen ? 4
- (b) Define atomic and ionic radii. Discuss the factors affecting these radii. 4
- (c) Explain the Diagonal relationship between lithium and magnesium. 4

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2. (a) What is diborane ? Explain the structure of diborane. 4
- (b) Give *two* methods of preparation of hydrides. 4
- (c) What is meant by allotropy ? Explain the structure and properties of allotropes of carbon. 4
3. (a) How is electronegativity determined ? Give its *two* application. 3
- (b) Give reasons :
- (i) Electron affinity of chlorine is higher than that of fluorine. 2
- (ii) Ionization energy of *Be* is higher than that of *Mg*. 2
- (c) How is borazine prepared from (i) B_2H_6 , (ii) BCl_3 ? 2
- (d) Write a short note on 'Caros acid'. 3

SECTION - II

4. (a) What is rate equation ? Discuss factors influencing the rate of reaction? 2, 3
- (b) Write the integrated rate expression for zero and first order reaction. 5
- (c) Give difference between molecularity and order of reaction. 2
5. (a) Define the following terms :

- (i) Molar conductance,
 (ii) Equivalent conductance,
 (iii) Specific conductance.

Explain the effect of dilution on these terms. 5

- (b) Discuss the elementary treatment of Debye Huckel Onsager equation for strong electrolytes. 4
- (c) Explain the effect of temperature on conductivity of metallic conductors. 2

6. (a) What is Kohlrausch's Law ? Give its application for the determination of molar conductance. 4
- (b) Calculate the pH of 10^{-10} M *NaOH* solution. 2
- (c) Discuss buffer action. 3
- (d) What is degree of dissociation ? How it is determined. 3

SECTION - III

7. (a) Write the product obtained upon dehydration of (i) 1-butanol, (ii) 2-butanol. Explain with mechanism. 4
- (b) Discuss the Saytzeff rule (with example). 4
- (c) Discuss the mechanism of electrophilic addition reaction. 4

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