

Roll No. ....

**91058**

**B. Sc. (Hons.) Mathematics 1st Semester  
Examination – December, 2015**

**Opt (II) CHEMISTRY – I**

**Paper : BHM-115**

***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. Explain the following terms : 6, 6
  - (a) Dipole Moment
  - (b) Bond energy
  
2. (a) Explain the structure of methane on the basis of hybridization. 6  
(b) Explain the structure of water on the basis of VSEPR theory. 6

91058-200 -(P-3)(Q-9)(15)

P. T. O.

8. (a) Give any four reactions of Alkanes. 4, 4, 4  
 (b) Give two methods for the preparation of cycloalkanes.  
 (c) Explain the following:  
 (i) Kolbe's Electrolytic Process  
 (ii) Meso compound  
 9. (a) Explain the stability order among Primary, Secondary, Tertiary carbanion. 4, 4, 4  
 (b) Explain the following:  
 Electrophile, Carbocation, Free radical.  
 (c) Explain the term Geometrical isomerism.

91058-200-(P-3)(Q-9)(15) (3)

3. (a) Write the limitations of Valence bond theory. 4, 4, 4  
 (b) Give reason to the following:  
 (i)  $H_2O$  molecule has distorted geometry.  
 (ii) Hund's Rule is also called Rule of maximum multiplicity.  
 (iii) Dipole moment in p-dichlorobenzene is zero.

### SECTION - II

4. Explain the following: 4, 4, 4  
 (a) Viscosity  
 (b) Rheochor  
 (c) Vapour Pressure  
 5. Explain the following: 6, 6  
 (a) Liquid crystals  
 (b) Parachor  
 6. Explain the following: 4, 4, 4  
 (a) Collision Number  
 (b) Most probable speed  
 (c) Critical temperature

### SECTION - III

7. Explain the following: 4, 4, 4  
 (a) Stereogenic centre  
 (b) Diastereomers  
 (c) Wurtz reaction  
 91058-200-(P-3)(Q-9)(15) (2)