11222

# B.Sc. II Semester Degree Examination, May - 2018

## CHEMISTRY

## Paper - II

Time : 3 Hours Maximum Marks : 80

**Instructions to Candidates:**

1) Question paper has **four** sections. All sections are **compulsory**.

2) Answer for **all** sections should be written in the same answer book.

### Section - A

### (Inorganic, Organic and Physical)

**1.** Answer any **Ten** of the following: **(10×2=20)**

a) Write the electronic cofiguration of Na and Rb.

b) Define ionisation energy.

c) Why salts of magnesium and Berylium do not give any colour on the bunsen flame.

d) Graphite is good conductor. Give reason.

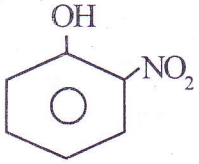
e) What are Pseudohalogens?

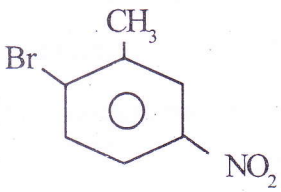
f) What are cycloalkanes? Give example.

g) Calculate the angle strain in cyclopropane.

h) What are deactivating substituents? Give example.

i) Write the IUPAC names of

i) 


ii) 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j) What is Huckel's rule?

k) State Raoult's law of vapour pressure.

l) What are azeotropic mixtures?

m) What is degrees of freedom?

n) Whta is component?

o) What is critical solution temperature?

## Section - B

## (Inorganic)

2. Answer any two of the following : (2×4=8)

a) Explain anomalous behaviour of lithium.

b) Describe the properties of alkaline earth metals with respect to electronic configuration and Ionisation energy.

c) Explain the structure of borazole.

3. Answer any two of the following : (2×6=12)

a) Discuss the properties of alkali metals with respect to softness, density and electronegative character.

b) Explain the comparative properties of alkaline earth metals with respect to carbonates, halides & sulphates.

c) Explain the structure and uses of diborane.

## Section - C

## (Organic)

4. Answer any two of the following : (2×4=8)

a) Write any two reactions of cycloalkanes.

b) Write the Friedal crafts alkylation reaction with mechanism.

c) Explain the electrophilic substitution reactions of nitrobenzene.

5. Answer any two of the following : (2×6=12)

a) Explain the Baeyer's strain theory with reference to the stability of cycloalkanes.

b) Explain the orienting effect of -OH group in phenol.

c) Describe the molecular orbital picture of Benzene.

## Section - D

## (Physical)

6. Answer any two of the following : (2×4=8)

a) An aqueous solution of succinic acid at 15°C, containing 0.07 g in 10 ml is in equilibrium with an ethernal solution which has 0.013 g in 10 ml. Calculate distribution coefficient.

b) Explain the vapour pressure composition curves of completely miscible liquids.

c) Derive an expression for Nernst's distribution law when solute associates in one of the solvent.

7. Answer any two of the following : (2×6=12)

a) State and derive Nernst's distribution law.

b) Explain Phase rule of water system.

c) Describe the fractional distillation of binary liquid solutions.