27222(New)

B.Sc. II Semester Degree Examination, April/May - 2019

CHEMISTRY

Chemistry-II

PAPER - II

(New)

Time : 3 Hours

Maximum Marks : 60

Instructions to Candidates:

1. Part A: **All** are compulsory
2. Part B: Solve any **five** questions from seven questions

PART-A

1. Answer the following Questions **(10×1=10)**

a) Alkali metals are softer than alkaline earth metals. Why?

b) Give the structure of diborane.

c) Graphite is a good conductor give reasons.

d) What is activating effect? Give one example.

e) What are the criteria for aromaticity?

f) How is nitrobenzene prepared from benzene?

g) Define Nernst distribution law.

h) What is critical solution temperature?

i) What are freezing mixture?

j) What is phase rule?

PART-B

Answer any **Five** of the following Questions (5×10=50)

2. a) Discuss the properties such as oxides, peroxides and hydroxides of alkali metals. **(6)**

   b) Explain the electronic configuration and ionization energy of alkaline earth metals. **(4)**

3. a) Explain the following properties of carbon family such as electronic configuration, ionization energy and electron affinity. **(6)**

   b) Give the diagonal relationship between boron and silicon. **(4)**

4. a) Explain the mechanism of halogenation of benzene. **(6)**

   b) Write a brief note on structure of benzene. **(4)**

5. a) Explain the reduction of nitrobenzene in acid, alkali and neutral medium. **(6)**

   b) Explain the different electrophilic substitution of nitrobenzene. **(4)**

6. a) Derive an expression for Nernst distribution law when solute molecules undergo association. **(6)**

   b) Explain the application of Nernst distribution law to solvent extraction. **(4)**

7. a) State and explain Raoults law of vapour pressure. **(6)**

   b) Write a note on different types of binary mixtures of completely miscible liquids. **(4)**

8. a) Discuss the application of phase rule to KI-H_2O system. **(6)**

   b) Give the application of phase rule to water system. **(4)**

11222(Old)

B.Sc. II Semester Degree Examination, April/May - 2019

CHEMISTRY

PAPER - II

(Old)

Time : 3 Hours Maximum Marks : 80

Instructions to Candidates:

1. Question paper has four sections all four sections are compulsory
2. Answer **four** sections should be written in the same answer book

Section-A

(Inorganic, Organic,Physical)

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

a) What is flame colouration test?

b) What are s-block elements?

c) What are P-block elements?

d) Graphites is a good conductor? Give reason.

e) Alkali metals are good reducing agent. Give reason.

f) What are alicyclic compounds? Why they behave like alkanes.

g) Calculate the angle strain in cyclopropane.

h) What is meant by orientation?

i) What is meant by Aromaticity?

j) What are reduction product of nitrobenzene in neutral medium?

k) Write the different types of liquid mixtures with example.

l) What are Azeotropic mixtures?

m) State phase rule.

n) What are freezing mixture?

o) Define the term component.

P.T.O.

Section-B

(Inorganic)

II. Answer any **Two** of the following (2×4=8)

a) Give an account of borazole

b) Explain the diagonal relationship between lithium and Magnesium

c) Explain the comparative study of oxides and peroxides of alkaline earth metal.

III. Answer any **Two** of the following. (2×6=12)

a) Discuss the following properties of alkali metals

i) Electronic configuration

ii) Ionization energy

b) Discuss the structure of Iodic acid

c) Explain the structural features of graphite

Section-C

(Organic)

V. Answer any **Two** of the following (2×4=8)

a) Give the preparation of cycloalkanes from the following method

i) Freund's method

ii) Dieckmann's method

b) Write a brief note on structure of benzene

c) Explain the electrophilic substitution reaction of nitrobenzene

Answer any **Two** of the following. (2×6=12)

a) Discuss sachse-Mohr's theory of stainless ring

b) Explain the mechanism of nitration of benzene

c) Explain the reduction of nitrobenzene in acid, alkali medium

Section-D

(Physical)

VI Answer any **Two** of the following **(2×4=8)**

a) Explain the terms

i) Phase

ii) Component

b) Explain modification of law when solute undergo association

c) Discuss the variation of vapour pressure and boiling point of completely miscible liquid pair with composition

VII. Answer any **Two** of the following. **(2×6=12)**

a) What is solvent extraction? Explain

b) Explain the critical solution temperature with respect to Nicotine-water system

c) Explain the application of phase rule to sulphur system
