

B.Sc. Semester - 2 (CBCS) Examination
March/April – 2023 (New Course)
CHEMISTRY (CORE)

Time: 2:30 Hours

Marks: 70

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate marks.

Q.1(A) Answer the following questions. (04)

Discuss structure and Lewis acidity of boron halide.

Q.1(B) Answer the following question. (Any Two) (10)

1. Derive r^+/r^- ratio for tetrahedral crystal lattice.
2. Write note on Inter halogen compounds.
3. Discuss oxo acids of phosphorous.

Q.2(A) Answer the following questions. (04)

Give the difference between activating and deactivating group.

Q.2(B) Answer the following question. (Any Two) (10)

1. Explain ozonolysis and catalytic reduction of alkenes.
2. What are characteristic reactions of benzene? write only reaction of nitration of benzene with mechanism.
3. Write short note on Bayer strain theory and discuss its limitation.

Q.3(A) Answer the following questions. (04)

Discuss the common ion effect.

Q.3(B) Answer the following question. (Any Two) (10)

1. Explain bragg's X-ray diffraction method for Internal analysis of Crystal.
2. Derive question of pH of strong acid and weak base.
3. Explain the buffer mechanism of acidic and basic buffer solution.

Q.4(A) Answer the following questions. (04)

1. Give structure of following compounds.

I. Bicyclo[2.2.0]hexane

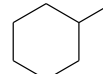
II. Bicyclo[2.2.1]heptane

2. Give IUPAC name of following structure.

I.



II.



Q.4(B) Answer the following question. (Any Two) (10)

1. Discuss Born-Haber cycle with example of NaCl.
2. Explain Oxymercuration-demercuration.
3. Discuss the internal structure of NaCl by X-ray diffraction data.

Q.5(A) Answer the following questions. (04)

Find out the Hydrolysis constant and pH for 0.5 M CH_3COONa solution.

$$K_a = 1.74 \times 10^{-5}$$

Q.5(B) Answer the following question. (Any Two) (10)

1. Give hybridization and shape of
 i) XeO_3 ii) XeF_6 iii) BF_3 iv) ICl_2^- v) XeOF_2
2. Explain acidity of Alkynes.
3. Give the difference between Amorphous and crystalline solid
