

B.Sc. Semester - 2 (CBCS) Examination
March/April -2019 (New Course)
CHEMISTRY(CORE)

Time: 2:30 Hours**Marks: 70****Instructions:**

1. All questions are compulsory.
 2. Figures to the right indicate marks.
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Que 1 (a) Answer the following question.**(4)**

- (1) Explain oxides of Nitrogen.

Que 1 (b) Answer any two question out of three.**(10)**

- (1) Give structure, hybridization, BP, LP and shape of XeOF_2 and IF_7
- (2) (I) Define: Unit cell and crystallography
(II) Derive radius ratio in tetrahedral structure.
- (2) Discuss Born-Haber cycle.

Que 2 (a) Answer the following question.**(4)**

- (I) Give structure of 6-Chloro Bicyclo [2.2.2] oct-2-ene and Spiro [3.4] octane
- (II) Explain hydrohalogenation of alkynes

Que 2 (b) Answer any two question out of three.**(10)**

- (1) Explain sulphonation of benzene with mechanism.
- (2) Explain any two methods for preparation of small ring cycloalkanes..
- (3) Explain conformation of n-Butane.

Que 3 (a) Answer the following question.**(4)**

- (1) Discuss structure of Rock-salt.

Que 3 (b) Answer any two question out of three.**(10)**

- (1) (I) Explain Trigonal system and Triclinic system with examples.
(II) Explain mechanism of basic buffer solution with example.
- (2) Derive equation of K_h , h and pH for salts of weak acid and strong base.
- (3) (I) Calculate pH of 0.004 M hydrazine solution dissociation constant of hydrazine is 8.96×10^{-7}
(II) Define plane of symmetry and line of symmetry.

Que 4 (a) Answer the following question. (4)

(1) Explain oxo acids of phosphorous.

Que 4 (b) Answer any two question out of three. (10)

(1) Explain metal deficiency defects.

(2) Explain 1, 2 and 1, 4- addition reaction of Buta-1, 3-diene with mechanism.

(3) Derive Henderson-Hassel batch equation for acidic and basic buffer.

Que 5 (a) Answer the following question. (4)

(1) Explain Friedel-Crafts Alkylation with mechanism.

Que 5 (b) Answer any two question out of three. (10)

(1) Explain n and p-type semiconductor.

(2) What is Aromaticity? Explain Huckel's rule with example.

(3) Explain Miller and Weiss indices.
