

Your Roll No.....

BSc-MSc INTEGRATED PROGRAM (CHEMISTRY)
SEMESTER-II EXAMINATION 2018
PAPER CODE: BCH-CC3TH
PAPER TITLE: INORGANIC CHEMISTRY-I

Time: Three Hours

Maximum Marks: 75

(Write your Roll No at the top immediately on receipt of this question paper)

Attempt All questions. All parts of a question must be answered in continuation.

Q1. Attempt ANY TEN of the following:

[1.5x10=15]

- What is Pidgeon process?
- How does a blast furnace differ from an electric furnace?
- What is pig iron? What is its composition?
- What is the use of potassium superoxide?
- Which mineral contains rubidium and cesium? What is its molecular formula?
- How will you store the group I elements/alkali metals?
- What are electrides?
- Write down the formulae of borax and kernite.
- Order the metallic character of group 13 elements.
- What is ruby? How is it prepared?
- What is the composition of bronze? How are bells made?
- What is the percent by mass of oxygen on the moon?
- Why are the boiling points of PH_3 , AsH_3 and SbH_3 lower than that of NH_3 ?
- What are aluminides?
- Draw the structure of $(\text{ClF}_2)(\text{SbF}_6)_2$.

Q2. Attempt ANY THREE of the following

[3x5=15]

- Draw and describe Ellingham diagram with an example.
- Describe hydrometallurgical extraction of copper.
- Draw the schematic diagram of a blast furnace showing reduction of iron ores to iron metal.
- Describe Czochralski process.
- Describe electrochemical extraction of aluminium from bauxite.

P. T.O.

Q3. Attempt ANY THREE of the following

[3x5=15]

- A. Draw and describe NaCl and CsCl structures.
- B. Write short notes on reaction of sodium with liquid ammonia.
- C. What is 2,2,2-crypt?. Describe the structure of [Rb(crypt)CNS.H₂O].
- D. Draw the structure of Mg(EDTA)(H₂O) complex and order the formation constants of EDTA complexes of group 2 elements.
- E. Describe the application of gypsum in fire-proof wall board.

Q4. Attempt ANY THREE of the following

[3x5=15]

- A. Describe the reaction of diborane with soft and hard Lewis bases.
- B. Write short notes on two allotropic forms of carbon: Diamond and graphite.
- C. What is hydrosilylation? Explain with an example.
- D. Draw and describe the most stable room temperature structures of metallic As, Sb and Bi.
- E. Write short notes on different allotropic forms of phosphorous.

Q5. Attempt ANY THREE of the following

[3x5=15]

- A. What is a pseudohalogen? Explain chemical reactions of pseudohalogens.
- B. What is inorganic benzene? Is the nomenclature correct? If not, explain the reasons.
- C. Describe various theories of bonding in trimeric cyclophosphazenes.
- D. What are silicones? How are they prepared? Describe three different types of structures of silicones.
- E. Describe synthesis and structures of three types of xenon fluorides.

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