

Code No. : 20321 E Sub. Code : AMCH 51

B.Sc. (CBCS) DEGREE EXAMINATION,
NOVEMBER 2023.

Fifth Semester

Chemistry — Core

INORGANIC CHEMISTRY — II

(For those who joined in July 2020 only)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

- Which of the following occur in monoatomic state?
 - He
 - Ar
 - Kr
 - All the above
- The outermost electronic configuration of noble gases is _____
 - np^6
 - ns^2
 - $ns^2 np^6$
 - $ns^0 np^6$

- Reduction of metal oxide by carbon is called as _____
 - Calcination
 - Roasting
 - Smelting
 - Carbonylation
- What is the equivalent weight of iodine in iodometric titration? Molecular weight = 254
 - 254
 - 127
 - 84.8
 - 508
- _____ is not an interfering anionic radical
 - borate
 - chloride
 - fluoride
 - oxalate

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

- What are Clathrates? Give their uses.

Or

 - Give the uses of noble gases.
- Draw the structure of Wilkinson's catalyst. Give its application.

Or

 - Write the general properties of zinc group metals.

- The element of group _____ is called vanadium group.
 - VII
 - VIII
 - VIB
 - VB
- The metal ion present in Wilkinson catalyst is
 - Rh
 - Rh(I)
 - Rh(II)
 - Rh(III)
- The common oxidation state of lanthanide is _____
 - +2
 - +3
 - +4
 - 0
- f*-block elements are also called as _____
 - alkaline earths
 - transition elements
 - inner transition element
 - radio active elements
- _____ can be purified by van Arkel method
 - Li
 - Be
 - Ti
 - All the above

- Give the preparation of thrium dioxide and uranylacetate.

Or

 - Discuss the separation of lanthanides by ion-exchange method.
- Discuss the mineral wealth of India.

Or

 - State and explain the principle of magnetic separation of ore concentration.
- What is common ion effect? Give its application in qualitative analysis.

Or

 - Discuss the principle of complexometric titration.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

- Discuss the structure and bonding in xenon compounds.

Or

 - Explain the separation of noble gases.

17. (a) Discuss any four general characteristics of d-block elements.

Or

(b) Write a short note on :

(i) Coinage metals. (4)

(ii) Ziegler - Natta catalyst. (4)

18. (a) What is lanthanide contraction? Give its cause and consequences.

Or

(b) Write the similarities and differences between lanthanides and actinides.

19. (a) How will you extract thorium in pure form from its ore?

Or

(b) Discuss the principles of following methods with example.

(i) Van Arkel deBoer's method. (4)

(ii) Roasting. (4)

20. (a) What is co-precipitation and post-precipitation? How will you prevent them?

Or

(b) Define the following :

(i) Molarity. (2)

(ii) Molality. (2)

(iii) Formality (2)

(iv) Normality. (2)