

(6 pages)

Reg. No. :

Code No. : 10449 E Sub. Code : CMCH 41

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

Fourth Semester

Chemistry – Core

INORGANIC CHEMISTRY – II

(For those who joined in July 2021 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. NH_3 is
 - (a) Lewis acid
 - (b) Lewis base
 - (c) Arrhenius acid
 - (d) All the above
2. Ag^+ is a
 - (a) Hard base
 - (b) Hard acid
 - (c) Soft acids
 - (d) Soft base

3. Which one of the following is a highest oxidation state in d block elements?
 - (a) +2
 - (b) +4
 - (c) +7
 - (d) (a) and (c)
4. Most of the transition metals ions and their compounds are
 - (a) Ferro magnetic
 - (b) Anti ferro magnetic
 - (c) Paramagnetic
 - (d) Diamagnetic
5. Which metal is used for refining metals that have a low melting point by zone refining?
 - (a) tin
 - (b) lead
 - (c) bismuth
 - (d) all the above
6. Which one of the industrial process for the commercial production of pure ductile titanium, zirconium etc?
 - (a) Zone refining
 - (b) Van arkel de boer refining
 - (c) Electrolytic refining
 - (d) All the above

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7. Which one of the following is correct?
 - (a) All halogens are diatomic molecules
 - (b) All halogens exist as monoatomic molecules
 - (c) All the halogens are colourless
 - (d) Chlorine does not reacts with water
8. Which indicates how readily they can accept electrons?
 - (a) Oxidising state
 - (b) Oxidising power
 - (c) Oxidising ability
 - (d) Oxidation
9. When a measurement results comes to the true value, its known as
 - (a) Precision
 - (b) Error
 - (c) Accuracy
 - (d) Systematic accuracy
10. The median of 4, 1, and 7
 - (a) 1
 - (b) 2
 - (c) 7
 - (d) 4

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PART B — (5 × 5 = 25 marks)

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

Each answer should not exceed 250 words.

11. (a) Write on lewis concept.

Or

(b) Write shortly on SHAB principle.
12. (a) Write a note on the following in d block elements (i) Density (ii) Colour.

Or

(b) Explain Lanthanide contraction.
13. (a) Write the preparation and properties of $\text{U}(\text{CH}_3\text{COO})_2$.

Or

(b) Write the preparation and properties of $\text{K}_2\text{Cr}_2\text{O}_7$.
14. (a) Write the preparation and properties of CIF.

Or

(b) Write the preparation and properties of clathrates.

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[P.T.O.]

15. (a) How the significant figures are important in error analysis?

Or

- (b) Define the following (i) Median (ii) Mean (iii) Relative mean deviation.

PART C — (5 × 8 = 40 marks)

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

Each answer should not exceed 600 words.

16. (a) (i) Discuss on Brownsted Lowry concept. (5)
(ii) Write a note on levelling effect. (3)

Or

- (b) (i) Write in detail on Usanovic concept. (4)
(ii) Write on classification of solvent. (4)

17. (a) Discuss on the following in d block elements
(i) Catalytic properties (ii) Complex formation.

Or

- (b) Discuss the following in f block elements
(i) Oxidation states (ii) Magnetic properties.

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18. (a) Explain :

- (i) Magnetic separation (4)
(ii) Calcination and roasting. (4)

Or

- (b) Explain

- (i) Van Arkel refining (4)
(ii) List out the uses of thorium. (4)

19. (a) (i) Write a note on pseudohalogens. (5)
(ii) List out the properties of clathrates. (3)

Or

- (b) (i) Write a note on cyanogens and azidocarbon disulphide. (5)
(ii) List out the uses of inert gases. (3)

20. (a) (i) How will you detect and eliminate the systematic errors? (6)
(ii) Define Errors. (2)

Or

- (b) (i) How the standard deviation is useful in the statistical treatment of error analysis. (5)
(ii) Write a note on T test. (3)

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