

(7 pages)

Reg. No. :

Code No. : 20471 E Sub. Code : CMCH 11

B.Sc. (CBCS) DEGREE EXAMINATION,
NOVEMBER 2021.

First Semester

Chemistry — Core

INORGANIC CHEMISTRY — I

(For those who joined in July 2021 onwards)

Time : Three hours

Maximum : 75 marks

PART A — ($10 \times 1 = 10$ marks)

Answer ALL questions.

Choose the correct answer.

1. First man predict inter relation of matter and energy is
 - (a) Einstein
 - (b) Debroglie
 - (c) Plank
 - (d) Bohr

2. For d electron the azimuthal quantum number is
- (a) zero (b) 1
(c) 2 (d) 3
3. Which of the following element is most electro negative?
- (a) Br (b) S
(c) P (d) F
4. The electro negativity of the following elements increases in the order
- (a) C, N, Si, P (b) N, Si, C, P
(c) Si, P, C, N (d) P, Si, N, C
5. The polarising power of the cation ————— as its charge increases.
- (a) increases (b) decreases
(c) no change (d) none of the above
6. Which is the most covalent among the following?
- (a) NaCl (b) LiCl
(c) KCl (d) RbCl
7. The oxidation state of alkali metals
- (a) +1 (b) +2
(c) zero (d) none of the above

8. Bedz is _____
(a) Covalent
(b) Ionic
(c) Co-ordinate
(d) None of the above
9. AgCl is precipitated in the presence of
(a) NaOH (b) NH₃
(c) HCl (d) dil.HNO₃
10. The reagent employed for detection of aluminum is
(a) Nessler's reagent
(b) Fenton's reagent
(c) Ammonium molybdate
(d) Oxine

PART B — (5 × 5 = 25 marks)

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

Each answer should not exceed 250 words.

11. (a) State and explain Bohr's model of an atom.
Or
(b) Explain the importance of Schrodinger's wave equation.

12. (a) What are factors which affecting the ionisation energy?

Or

- (b) What is meant by atomic radius? How does it vary when we move
- (i) down a group and
 - (ii) across the period.

13. (a) What is covalent bond? and give the properties of covalent bonded molecule?

Or

- (b) What are the differences between bonding anti bonding molecular orbitals?

14. (a) Explain why lithium resemble magnesium more than alkali metals.

Or

- (b) Write a note on chemistry of glass.

15. (a) Explain common ion effect and indicate how it is helpful in qualitative analysis.

Or

(b) Explain the procedure for the elimination of following interfering acid radical

(i) phosphate

(ii) fluoride

PART C — ($5 \times 8 = 40$ marks)

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

Each answer should not exceed 600 words.

16. (a) Explain the following : ($2 \times 4 = 8$)

(i) stability of half filled and completely filled orbitals

(ii) shapes of s, p, d orbitals

Or

(b) Write a note on Sommerfeld theory and its limitations.

17. (a) Write a note on the following : ($2 \times 4 = 8$)

(i) covalent radii

(ii) Vander Waal's radii

Or

(b) Determine electro negativity using
(2 × 4 = 8)

(i) Pauling's method

(ii) Mullikan's approach.

18. (a) Explain shapes of simple inorganic molecules by VSEPR theory.

Or

(b) Write a note on the following : (2 × 4 = 8)

(i) Inert pair effect

(ii) Allotrops of sulphur

19. (a) Explain types of hybridisation with examples.

Or

(b) Explain the structure of silicates.

20. (a) Write a note on the following :

(i) Solubility product (2)

(ii) Various concentration units. (3 × 2 = 6)

Or

(b) Write a note on following in gravimetric analysis (2 × 4 = 8)

(i) Washing of precipitate

(ii) Drying and ignition of precipitate.
