Reg. No. : ....

Code No. : 6527   Sub. Code : ZCHM 12

M. Sc (CBCS) DEGREE EXAMINATION,

NOVEMBER 2021

First Semester

Chemistry - Core

FUNDAMENTALS OF INORGANIC CHEMISTRY
NUCLEAR CHEMISTRY AND INORGANIC
POLYMERS.

(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. How many periods and groups are present in the modern periodic table?

    (a) 7 periods, 18 groups (b) 8 periods, 7 groups

    (c) 7 periods, 7 groups   (d) 8 periods, 8 groups

2. What is the other name for group 18th elements?

   (a) Nobel gases

   (b) Alkali metals

   (c) Alkaline earth metal

   (d) Halogen

3. The maximum no of hydrogen bond that a molecule of water can have is

   (a) 1   (b) 2

   (c) 3   (d) 4

4. According to Fajan's rule, covalent bond is favoured by

   (a) Large cation and small anion

   (b) large cation and large anion

   (c) Small cation and large anion

   (d) small cation and small anion

5. Solvents that neither accept nor donate protons are called as

   (a) protic   (b) aprotic

   (c) Both (a) and (b)   (d) none

6. As per Lewis concept, a molecule in which the central atom has an incomplete octet is

   (a) Base   (b) acid

   (c) Alkali   (d) neutral solvent

7. The source of stellar energy is

   (a) Nuclear fission   (b) nuclear fusion

   (c) Nuclear decay   (d) None

8. Who was the first person to win two nobel prices?

   (a) Ernest Rutherford   (b) Henri Becquerel

   (c) Marie Curie   (d) Rosalind

9. Which of the following is an inorganic polymer?

   (a) teflon   (b) perspex

   (c) Silicones   (d) bakelite

10. Pick out the wrong statement?

   (a) Protein is a natural polymer

   (b) Neoprene is natural rubber

   (c) Polystyrene is thermoplastic

   (d) polythene is copolymer.

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 electron affinity and electronegativity.

Or

    (b) Write about ion-dipole forces.

12. (a) State concepts of VB theory.

Or

    (b) Describe the s-s and p-p overlapping.

13. (a) State and explain Lewis acid and bases.

Or

    (b) What are protic and aprotic solvents? Give examples also.

14. (a) Discuss the nuclear fission and fusion reaction with example.

Or

    (b) State and explain nuclear transmutation reactions.

15. (a) Explain the following with example catenation and hetrocatenation.

Or

(b) Explain polyatomic anions.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)
Each answer should not exceed 600 words.

16. (a) Write a note on slater rules explain them in detail.

Or

(b) Discuss the factors which affecting the redox potentials.

17. (a) State VSEPR theory and write their postulates.

Or

(b) Explain Walsh diagrams.

18. (a) Discuss the solvation effects and acid base anomalies in detail.

Or

(b) Explain the general characteristics of solvents.

19. (a) Write about atomic power projects in India.

Or

(b) What are radioisotopes? Write a note on radiometric titration's.

20. (a) What are polyacids? Write in detail.

Or

(b) Discuss about the poly atomic zintl ions.

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