D 12617 (Pages : 2) Name..

Reg. No.......................................

FIRST SEMESTER (CBCSS—UG) DEGREE EXAMINATION, NOVEMBER 2021

Chemistry

CHE 1B 01—THEORETICAL AND INORGANIC CHEMISTRY—I

(2021 Admissions)

Time : Two Hours   Maximum : 60 Marks

Section A (Short Answers)

Answer at least **eight** *questions.*
Each question carries 3 *marks.*
All questions can be attended.
Overall Ceiling 24.

1. What is meant by scientific observation ?

2. Name four branches of chemistry.

3. Explain and illustrate term accuracy with regard to analytic result.

4. What is a dessicant ? Give an example.

5. Explain term electron affinity.

6. Explain and draw atomic radius and covalent radius.

7. What are soft acids ?

8. Explain lux flood definition of acid and base.

9. Define dipole moment and what is its expression and unit.

10. Draw the structure of borazine.

11. Explain one use of radioisotopes in medical diagnosis.

12. What is mass defect ?

$(8 \times 3 = 24 \text{ marks})$

Section B (Short Essays)

Answer at least **five** *questions.*
Each question carries 5 *marks.*
All questions can be attended.
Overall Ceiling 25.

13. Explain and discuss criteria for scientific hypothesis.

14. Write short note on lab safety practices.

Turn over

15. What are characteristics that a primary standard should possess ?

16. Discuss basic features of Pauling's scale of electronegativity.

17. Explain Lowry Bronsted theory of acids and bases. Compare relative strength of conjugate acid and base.

18. The masses of $^{40}Ca_{20}$ atom, $^{1}H_{1}$ and $^{0}n_{1}$ are 39.975 amu, 1.0078 and 1,0086 amu. Calculate binding energy per nucleon for Ca atom.

19. State and illustrate group displacement law.

$(5 \times 5 = 25 \text{ marks})$

Section C (Essay)

Answer any **one** *question.*
The question carries 11 *marks.*

20. Define and explain the principle behind use of adsorption indicators.

21. What is Born-Haber cycle ? Discuss with respect to NaCl.

$(1 \times 11 = 11 \text{ marks})$