D 135199 **(Pages : 2)** **Name.....**

Reg. No.....

FIRST SEMESTER (CBCSS–UG) DEGREE EXAMINATION, NOVEMBER 2025

(2019 Syllabus)

Chemistry

CHE 1B 01—THEORETICAL AND INORGANIC CHEMISTRY I

Time : Two Hours Maximum : 60 Marks

Section A (Short Answer)

Answer all questions.
Each question carries 2 marks with ceiling of marks 20.

1. Define hypothesis.
2. Draw structure of SO_2 and SO_3.
3. How would you prepare 100ml 0.1N Mohrs salt solution. Equivalent mass of Mohrs salt is 392 ?
4. Distinguish between absolute error and relative error.
5. What is standard electrode potential ?
6. What is the role of MSDS in lab safety ?
7. What is diagonal relationship in periodic table with an example ?
8. Explain inert pair effect with an example.
9. Discuss on metal hydroxy compounds.
10. Give two limitations of HSAB concept.
11. How does an atom bomb work ?
12. What do you mean by decay series ? Mention various types of series.

(Ceiling of marks 20)

Section B (Short answer)

Answer any **seven** *questions.*
Each question carries 5 marks with ceiling of marks 30.

13. Calculate the molarity of 5g NaCl in 500 ml water. Molecular mass of NaCl is 58.44.
14. Describe the importance of personal protection equipment in laboratory and list three types of commonly used PPE.

Turn over

15. Explain slatters rule and describe its application.
16. Discuss Born -Haber cycle and its role in determining the stability of ionic compounds.
17. Explain Lux-flood acid base concept with an example.
18. Illustrate group displacement law.
19. In a volumetric experiment the volume of the titrant used are 9.98, 9.99, 9.98, 9.95, 10.00 and 10.02 ml. Calculate standard deviation.

(Ceiling of marks 30)

Section C (Paragraph)

Answer any one question.
The question carries 10 marks.

20. (a) Explain on nonmetal hydroxy compounds, (b) Discuss in brief two methods separation of isotopes, (c) Give structures of any three oxides of nitrogen.

[2 + 5 + 3 =10 marks]

21. (a) Discuss the principle of complexometric titrations, (b) 20 ml NaOH requires 19.5 ml 0.01 M HCl for neutralization. Calculate molarity of NaOH, (c) What is Electron affinity ? How does it different from ionization energy ?

[5 + 3 + 2 = 10 marks]