

**FIRST SEMESTER B.A./B.Sc. DEGREE EXAMINATION
NOVEMBER 2019**

(CUCBCSS—UG)

Chemistry

CHE 1C 01—GENERAL CHEMISTRY

Time : Three Hours

Maximum : 64 Marks

Section A

Answer all questions.

Each question carries 1 mark.

1. In terms of electron transfer ——— is oxidation.
2. Name the external indicator for dichrometric titrations.
3. Write the Schrödinger wave equation for a three-dimensional box.
4. What is the hybridization of SF_6 ?
5. ——— is the principle of hydrogen bomb.
6. The oxidation state of iron on myoglobin is ———.
7. The metal ion present in vitamin B_{12} is ———.
8. A beta particle is equivalent to ———.
9. Write the electronic configuration of Cu – 29.
10. The SI unit for molality is ———.

(10 × 1 = 10 marks)

Section B

Answer any seven questions.

Each question carries 2 marks.

11. Outline the Pauling scale of electronegativity.
12. Explain the theory of acid-base indicators.
13. State Pauli's exclusion principle with an example.
14. What is the significance of n/p ratio ?
15. What is the role of chlorophyll in photosynthesis ?
16. What is the importance of zinc in biological systems ?

Turn over

17. Differentiate between nuclear fission and nuclear fusion.
18. Discuss the hybridization and structure of IF_7 ?
19. Differentiate between accuracy and precision.
20. Calculate the mass of 24.092×10^{23} molecules of SO_2 ?

(7 × 2 = 14 marks)

Section C

*Answer any four questions.
Each question carries 5 marks.*

21. Explain how oxygen is transported inside the body.
22. Comment on the nuclear reactors in India.
23. Construct the energy level diagram for the electrons in CO and calculate the bond order.
24. Explain the mechanism of action of sodium potassium pump.
25. What are quantum numbers? Discuss the significance of each.
26. With suitable examples, explain Arrhenius theory and Bronsted—Lowry theory of acids and bases.

(4 × 5 = 20 marks)

Section D

*Answer any two questions.
Each question carries 10 marks.*

27. Briefly explain, with examples, the different applications of radioactive isotopes.
28. What are the postulates of VSEPR theory? Illustrate the shapes of NH_4^+ and SO_2^{2-} with the help of VSEPR theory.
29. State modern periodic law. Define and explain the periodicity of ionization potential and electron affinity.
30. What are common ion effect and solubility product. Explain its applications in inorganic qualitative analysis?

(2 × 10 = 20 marks)