23104650

QP CODE: 23104650

Reg No : .....

Name : .....

B.Sc DEGREE (CBCS) REGULAR/IMPROVEMENT/REAPPEARANCE EXAMINATIONS, FEBRUARY 2023

First Semester

Complementary Course - CH1CMT01 - CHEMISTRY - BASIC THEORETICAL AND ANALYTICAL CHEMISTRY

(Common to B.Sc Botany Model I, B.Sc Botany Model II Environmental Monitoring And Management, B.Sc Botany Model II Food Microbiology, B.Sc Botany Model II Horticulture and Nursery Management, B.Sc Botany Model II Plant Biotechnology, B.Sc Family & Community Science Model I, B.Sc Food Science & Quality Control Model III, B.Sc Food Technology & Quality Assurance, B.Sc Geology and Water Management Model III, B.Sc Geology Model I, B.Sc Physics Model I, B.Sc Zoology Model I, B.Sc Zoology Model II Aquaculture, B.Sc Zoology Model II Food Microbiology, B.Sc Zoology Model II Medical Microbiology)

2017 Admission Onwards

13E9463B

Time: 3 Hours Max. Marks : 60

Part A

*Answer any **ten** questions.*

*Each question carries **1** mark.*

1. Give the electronic configuration of
   (i) Chromium (Z= 24) and (ii) Oxygen (Z=8).
2. Differentiate between covalent bond and coordinate bond using an example.
3. How many σ and π bonds are present in C_2H_4 and C_2H_2 ?
4. Give the hybridization and geometry of ammonia molecule.
5. Which is the most electronegative element?
6. What is meant by a mole?
7. What is meant by solubility product?

8. Define indicators.

9. Give any two advantages of micro scale experiments.

10. What is scientific notation?

11. What are the different types of determinate errors?

12. Define chromatogram.

(10×1=10)

Part B

*Answer any **six** questions.*

*Each question carries **5** marks.*

13. What are the postulates of Bohr's atomic model? Give its merits.

14. How elements are clasified in Long Form of the periodic table?

15. Distinguish between valency and oxidation number.

16. State and explain Lowry Bronsted cocept of acids and bases. What are conjugate pair?

17. A buffer solution contains 0.20 mole of NH_4OH and 0.25 mole of NH_4Cl per litre. Calculate the pH of the solution. Dissociation constant of NH_4OH at room temperature is 1.81×10^{-5}.

18. Write down Henderson-Haselbach equation explaining the terms involved. Give applications of the equation.

19. Distinguish between primary and secondary standards.

20. Explain the fundamental and optimum conditions for efficient precipitation in gravimetric analysis.

21. Explain the principle of fractional distillation.

(6×5=30)

Part C

*Answer any **two** questions.*

*Each question carries **10** marks.*

22. Discuss valence bond theory in detail using suitable examples. What are its limitations?

23. Explain the various methods for explaining the concentration of solutions.

24. Write briefly on different types of titration techniques? How double burette method of titration is effective?

25. Write an account of the principle and application of paper chromatography and HPLC.

(2×10=20)