23145821

QP CODE: 23145821

Reg No : .....

Name : .....

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

692215EB

Time: 3 Hours

Max. Marks : 60

Part A

*Answer any **ten** questions.*

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

1. An electron is in one of the 3d orbital. Give the possible values of n,l and m_l.
2. Differentiate between covalent bond and coordinate bond using an example.
3. Explain breifly the lewis concept of covalent bond using a suitable example.
4. Why HCl doesnot display H- bonding where as HF does?
5. What is meant by a mole?
6. Define normality.
7. Define Lewis base. Give an example.
8. What is microanalysis?
9. Give the principle of gravimetric analysis.
10. What is scientific notation?
11. Name different types of errors.
12. Define chromatogram.

(10×1=10)

Part B

*Answer any **six** questions.*

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

13. What is hybridization? What are the characteristics of hybridization?
14. How elements are classified in Long Form of the periodic table.
15. How do ionic radii vary across a period and a group. Which one has a bigger size
    a) Neutral atom or cation b) Neutral atom or anion
16. 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}.
17. Why does the pH of a buffer solution remains constant even when few drops of
    (a) strong acid are added to an acidic buffer & (b) strong base are added to a basic buffer
18. a) State and explain solubility product.
    b) The solubility of silver chloride in water at 250C is 0.00179gl-1. Calculate the solubility product at 250c.
19. Differentiate equivalence point and end point.
20. Distinguish between primary and secondary standards.
21. Explain the principle of fractional distillation.

(6×5=30)

Part C

*Answer any **two** questions.*

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

22. How is dual nature of matter and radiation explained? Calculate the wavelength associated with a ball of mass 0.1 kg moving with avelocity of 10 ms^{-1}. ($h = 6.626 \times 10^{-34}$ Js)
23. What are the rules for assigning oxidation number? Explain with example.
24. Write briefly on different types of titration techniques? How double burette method of titration is effective?
25. Discuss ion exchange chromatography and column chromatography.

(2×10=20)