QP CODE: 21102450

21102450

Reg No : .....

Name : .....

B.Sc DEGREE (CBCS) EXAMINATIONS, OCTOBER 2021

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

93D99AC2

Time: 3 Hours Max. Marks : 60

Part A

*Answer any **ten** questions*

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

1. Moving with same velocity an elctron or proton which will have higher wavelength? Why?
2. How many electrons in an atom may have given quantum numbers?
   (i)n=2, l=0 (ii)n=3, m_l=-1/2
3. Define the term lattice energy.
4. Which of the following isomers have high bp?
   (i) o-hydroxybenzaldehyde (ii) p-hydroxybenzaldehyde
5. State Modern Periodic Law.
6. Calculate the mass 0.7 moles of nitrogen molecule.
7. Define parts per million (ppm).
8. Define titrant.
9. Give any two advantages of micro scale experiments.
10. Give the principle of gravimetric analysis.
11. What is solvent extraction?

12. Define chromatogram.

(10×1=10)

Part B

*Answer any **six** questions.*

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

13. Explain the formation of oxygen and nitrogen molecule using Valence Bond theory.
14. What are the factors affecting ionisation enthalpy?
15. Distinguish between valency and oxidation number.
16. Explain Lowry-Bronsted and Lewis concepts of acids and bases with suitable examples.
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. What is common ion effect? Mention its applications.
19. Calculate the mass required to prepare 0.1N 250 ml oxalic acid solution.
20. Discuss the principle of acid-base titrations with examples.
21. Discuss the rules for rounding off in calculations involving additions and subtractions.

(6×5=30)

Part C

*Answer any **two** questions.*

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

22. Explain the geometry of acetylene and ethylene using hybridization.
23. Derive the equation to calculate the dissociation constant of a weak acid. A solution of 0.10 M acetic acid is found to be dissociated to the extent of 1.33 percent at room temperature. Calculate the dissociation constant of the acid at this temperature.
24. Define errors. How are they classified? Discuss the different techniques used for the minimisation of errors.
25. Write an account of the principle and application of paper chromatography and HPLC.

(2×10=20)