QP CODE: 19103050

19103050

Reg No : .....

Name : .....

B.Sc.DEGREE(CBCS)EXAMINATION, NOVEMBER 2019

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

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Time: 3 Hours Maximum Marks :60

Part A

*Answer any **ten** questions.*

Each question carries 1 mark.

1. Which of the following orbitals are not possible? 2s, 2p, 2d, 3d, 3f
2. Explain breifly the lewis concept of covalent bond using a suitable example.
3. How many σ and π bonds are present in C_2H_4 and C_2H_2 ?
4. Why o-nitrophenol is more volatile than p-nitrophenol ?
5. Why noble gas has zero electron affinity?
6. Calculate the mass 0.7 moles of nitrogen molecule.
7. Define common ion effect.
8. Define indicators.
9. Give two substances used as a primary standard.
10. Give any two advantages of micro scale experiments.
11. Define accuracy.
12. Define chromatogram.

(10×1=10)

Part B

*Answer any **six** questions.*

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

13. What are the factors affecting the formation of an ionic bond?
14. How elements are clasified in Long Form of the periodic table?
15. Distinguish between normality and molarity of a solution. Calculate the normality and molarity of oxalic acid solution obtained by dissolving 63g oxalic acid in one litre water.
16. Explain Lowry-Bronsted and Lewis concepts of acids and bases with suitable examples.
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. What is meant by a buffer solution? How are they classified? Explain giving examples.
19. Discuss complex formation titration with examples.
20. Explain the fundamental and optimum conditions for efficient precipitation in gravimetric analysis.
21. Write a note on scientific and prefix notation.

(6×5=30)

Part C

*Answer any **two** questions.*

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

22. State and explain de-Broglie's relation.Give the experimental evidence for the wave nature of electron.Calculate the wavelength of an electron moving with a velocity of 2.05×10^{7} ms^{-1}. (mass of an electron = 9.1×10^{-31} kg) (h = 6.626×10^{-34} Js)
23. What are the rules for assigning oxidation number? Explain with example.
24. Write a note on different solvent extraction procedures.
25. Discuss ion exchange chromatography and column chromatography.

(2×10=20)