24046250

QP CODE: 24046250

Reg No : .....

Name : .....

B.Sc DEGREE (CBCS) IMPROVEMENT/REAPPEARANCE/MERCY CHANCE EXAMINATIONS, DECEMBER 2024

First Semester

Core Course - CH1CRT01 - GENERAL AND ANALYTICAL CHEMISTRY

(Common to B.Sc Chemistry Model I, B.Sc Chemistry Model II Industrial Chemistry, B.Sc Chemistry Model III Petrochemicals)

2017 Admission Onwards

75D11557

Time: 3 Hours Max. Marks : 60

Part A

*Answer any **ten** questions.*

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

1. What is astrochemistry?
2. What are interdisciplinary areas of chemistry and physics?
3. What are the trends in atomic sizes in the periodic table?
4. Calculate effective nuclear charge of 3d electron in Cr (atomic number of Cr = 24).
5. Give two examples of primary standard.
6. Give the names of two indicators used in acid-base titration.
7. No indicator is required for permagnometric titrations. Why?
8. Give the significance of digestion in gravimetry.
9. What is the principle of solvent extraction?
10. How will you purify and separate a mixture of naphthalene and benzophenone by chromatography?
11. List any two applications of gas chromatography.
12. What are the different types of graphs used to present analyzed data in scientific communications?

(10×1=10)

Part B

*Answer any **six** questions.*

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

13. Differentiate hypothesis, law and theory.
14. Distinguish between inductive and reductive reasoning.
15. Give a brief account on long form of periodic table?
16. How is Mulliken's electronegativity and Pauling's scale of electronegativity inter-related?
17. Define oxidation and reduction with examples in terms of oxygen transfer, hydrogen transfer and electron transfer.
18. 100 mL of 0.010M $Pb(NO_3)_2$ is mixed with 100mL of 0.010 M KF. Will a precipitate of PbF_2 form? Ksp for PbF_2 *is* 7.18×10^{-7}.
19. Differentiate between molarity and molality?
20. Which chromatographic technique is used for softening of hard water? Discuss.
21. Illustrate the instrumentation technique of HPLC.

(6×5=30)

Part C

*Answer any **two** questions.*

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

22. Give an account of evolution of chemistry and its progress.
23. Briefly discuss about EDTA titration and what are its advantages?
24. Briefly explain the principle, procedure and applications of TLC.
25. The following concentrations of Fe were reported in a set of measurements: 20.2, 20.4, 20.3, 20.1, 19.9, 20.0, and 19.8 ppm. Calculate (a) mean, (b) average deviation from mean, (c) standard deviation, (d) relative standard deviation, (e) coefficient of variation, and (f) variance.

(2×10=20)