

M.Sc.(Chem.) Semester - 1 (CBCS) Examination
OCT/NOV-2024 (AS PER SYLLABUS YEAR JUNE-2018)
ANALYTICAL CHEMISTRY(CORE)

Time: 2:30 Hours

Marks: 70

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate marks.

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- Q.1 (A) Answer the following question (04)**
(1) What is equivalent weight?
(2) Calculate for equivalent weight for H_2CO_3 and NH_4OH .
- Q.1 (B) Answer any two questions out of three. (10)**
(1) Define molarity, explain preparation of a) 1 Lit. of 0.1M KOH and b) 500 mL, 10 mM KOH solution?
(2) Define analytical chemistry and explain classification of analytical techniques.
(3) Explain mole concept and find the number of moles present in 100 gm of HNO_3 .
- Q.2 (A) Answer the following question (04)**
(1) Differentiate between classical methods and modern instrumental methods.
- Q.2 (B) Answer any two questions out of three. (10)**
(1) Explain the following methods in brief
(a) Spectroscopic methods of analysis
(b) Chromatographic methods of analysis
(2) Elucidate classical methods of analysis; including its limitations.
(3) Enlist instrumental methods of analysis with brief justification and applications.
- Q.3 (A) Answer the following question (04)**
(1) Discuss Mohr's method with its limitation.
- Q.3 (B) Answer any two questions out of three. (10)**
(1) Explain types of Ligands with example used in complexometric titration.
(2) Give an account of solvents for non-aqueous titration.
(3) Give classification of volumetric titration and enlist the basic requirements of volumetric methods.
- Q.4 (A) Answer the following question (04)**
(1) Explain about various layers of atmosphere.
- Q.4 (B) Answer any two questions out of three. (10)**
(1) Discuss classification of water pollutants with example.
(2) Write a note on organic and inorganic particulate matter.
(3) Give an account on particles, ions and radicals in environment.
- Q.5 (a) Answer the following question (04)**
(1) What is air pollution? Briefly explain factors behind urban air pollution.
- Q.5 (b) Answer any two questions out of three. (10)**
(1) Explain estimation of chloride and iron in water.
(2) Write a note on analysis of SO_x in air.
(3) Discuss estimation of total acidity and alkalinity of water.
