

M.Sc.(Chem.) Semester - 1 (CBCS) Examination
OCT/NOV-2025 (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.

Q.1 (A) Answer the following question (04)

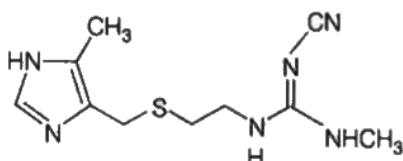
1. Define analytical chemistry and state the role of analytical chemist in laboratory.

Q.1 (B) Answer any two questions out of three. (10)

1. Give an account on spectroscopic and chromatographic methods of analysis
2. Discuss classical methods of analysis and state its limitations.
3. Explain kinetic methods taking suitable example.

Q.2 (A) Answer the following question (04)

1. How would you prepare 100 mL, 20 ppm benzoic acid in methanol?
2. Find the molecular weight and write molecular formula:

**Q.2 (B) Answer any two questions out of three. (10)**

1. Define analytical chemistry and explain classification of analytical techniques.
2. Explain mole fraction with suitable example.
3. Explain mole concept and find the number of moles present in 100 gm of AgNO₃.

Q.3 (A) Answer the following question (04)

1. What is redox titration? Give one example.

Q.3 (B) Answer any two questions out of three. (10)

1. Discuss ligands for complexometric titration.
2. Give an account of solvents for non-aqueous titration.
3. Explain gravimetric analysis and its application with suitable example.

Q.4 (A) Answer the following question (04)

1. Name the lowest layer of the Earth's atmosphere.
2. Which layer of the atmosphere contains the ozone layer?
3. In which layer do most weather phenomena occur?
4. Which is the coldest layer of the atmosphere?

Q.4 (B) Answer any two questions out of three. (10)

1. Classify of water pollutants with example.
2. Write a note on organic and inorganic particulate matter.
3. State sources of water and air pollution and explain the effects of pollutants on human and animals.

Q.5 (A) Answer the following question (04)

1. Explain BOD, COD and DO in brief.

Q.5 (B) Answer any two questions out of three. (10)

1. Explain estimation of chloride water. (With reaction)
2. Give an account on sampling techniques of gases.
3. Discuss estimation of calcium and magnesium from water sample.
