

B.Sc. Semester - 6 (CBCS) Examination**March/April-2026 (NEW COURSE)****Inorganic and Industrial Chemistry (Core (New))****Time: 2:30 Hours****Marks: 70****Instructions:**

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

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- Que.1(A) Answer the following question. (04)
(1) Calculate microstates for 3F and 3P term.
- Que.1(B) Answer the following questions. (Any two) (10)
(1) Explain Hole pegen diagram of d^1 electronic configuration.
(2) Differentiate: Para-magnetism and Diamagnetism.
(3) Explain Guoy's balance method with its limitations.
- Que.2(A) Answer the following question. (04)
(1) Explain Oxo process for manufacturing of detergent.
- Que.2(B) Answer the following questions. (Any two) (10)
(1) Explain the classification of surface active agents.
(2) Discuss physical and chemical pollution of water.
(3) Explain Green House Effect.
- Que.3(A) Answer the following question. (04)
(1) Draw only Orgel diagram for D and F term.
- Que.3(B) Answer the following questions. (Any two) (10)
(1) Discuss splitting of d orbitals in distorted tetrahedron structure.
(2) Define; Co-polymerization. Give synthesis and use of Buna-S.
(3) Explain free radical mechanism for polymer with suitable example.
- Que.4(A) Answer the following question. (04)
(1) Explain effect of temperature on magnetic susceptibility of various magnetic substances.
- Que.4(B) Answer the following questions. (Any two) (10)
(1) Determine the ground state spectral term for p^2 electronic configuration.
(2) State the name of different types of soaps and explain any two in detail.
(3) Explain absorption spectra of $[Cu(H_2O)_6]Cl_2$.
- Que.5(A) Answer the following question. (04)
(1) Draw only splitting patterns of d orbital in various crystal fields.
- Que.5(B) Answer the following questions. (Any two) (10)
(1) Discuss (i) Magnetic Induction (ii) Magnetic Permeability
(2) Discuss natural and man-made source of air pollution.
(3) Differentiate Biodegradable and Non-biodegradable polymer.
