

B.Sc. Semester - 5 (Remedial) (CBCS) Examination
March/April-2026 (NEW COURSE)
Inorganic and Industrial 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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- Que.1(A) Answer the following question. (04)
(1) Discuss structure of $\text{Fe}(\text{CO})_5$.
- Que.1(B) Answer the following questions. (Any two) (10)
(1) Explain normalization & orthogonality of wave function of the particle in one dimensional box.
(2) Write note on Degeneracy.
(3) Discuss metal nitrosyls containing NO^+ as a ligand.
- Que.2(A) Answer the following question. (04)
(1) Explain Sindri Process for the production of Ammonium Sulphate.
- Que.2(B) Answer the following questions. (Any two) (10)
(1) Discuss different types of cement (any five).
(2) Write note on RCC.
(3) Explain classification of fertilizers.
- Que.3(A) Answer the following question. (04)
(1) Discuss splitting of d – orbitals in octahedral field with CFSE
- Que.3(B) Answer the following question. (Any two) (10)
(1) Discuss factors affecting on the crystal field splitting energy.
(2) Discuss manufacturing of cotton seed oil by Expression method.
(3) Discuss different types of glass (any five).
- Que.4(A) Answer the following question. (04)
(1) Draw the full structure of $\text{Fe}_2(\text{CO})_9$, $\text{Mn}_2(\text{CO})_{10}$, $\text{Ir}_4(\text{CO})_{12}$ and $\text{Co}_2(\text{CO})_8$
- Que.4(B) Answer the following question. (Any two) (10)
(1) Derive wave and energy equation for a particle moving in three-dimensional box.
(2) Describe manufacture of normal super phosphate by Den process.
(3) Discuss splitting of d-orbital in tetrahedral field.
- Que.5(A) Answer the following question. (04)
(1) Write note on Iodine value.
- Que.5(B) Answer the following question. (Any two) (10)
(1) Explain the importance of IR spectra in study of metal carbonyls.
(2) Explain manufacturing of Portland cement.
(3) Explain briefly: Borosilicate glass and Glass wool.
