647510 **BSc6CheC601x** **Seat No :_____**

B.Sc. Semester - 6 (*CBCS*) Examination
March/April-2025 (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.

Que-1(A) **Answer the following question.** **(04)**

1) Discuss
   (A) Magnetic Susceptibility
   (B) Magnetic Permeability

Que-1(B) **Answer the following questions. (Any two)** **(10)**

1) Explain splitting of spectral terms in p^2 configuration with energy diagram.
2) Explain Guoy's balance method with its limitations.
3) Calculate microstates for ^3F and ^1G term.

Que-2(A) **Answer the following question.** **(04)**

1) Write note on Alfol process.

Que-2(B) **Answer the following questions. (Any two)**

1) Explain continues process for the manufacturing of soap.
2) Discuss CFC and Ozone depletion
3) Define Air pollution. Discuss major sources of Air pollution.

Que-3(A) **Answer the following question.** **(04)**

1) Draw only splitting pattern of *d* orbital in various crystal field.

Que-3(B) **Answer the following questions. (Any two)** **(10)**

1) what is Jahn Teller effect? Explain tetragonal distortion in octahedral complexes.
2) Explain free radical polymerization mechanism with example.
3) Give synthesis and use of Nylon-6, 6 and Teflon.

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 Ni^{+2} and Fe^{+2}.
2) State the name of different type of soaps and explain any two in detail
3) Explain absorption spectra of $[Ti(H_2O)_6]Cl_3$.

Que-5(A) **Answer the following question.** **(04)**

1) Draw only orgel diagram for D and F term.

Que-5(B) **Answer the following questions. (Any two)** **(10)**

1) Derive the equation for diamagnetic moment.
2) Write note on Green House Effect.
3) Differentiate Biodegradable and Non-biodegradable polymer.

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