647510 **MSC2CIcC101x** **Seat No :_____**

M.Sc.(Chem.) Semester - 2 (*CBCS*) Examination
March/April – 2026 (As Per Syllabus Year-2018)
Inorganic 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** **(04)**

(1) Write a note on diamagnetism in molecular bodies.

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

(1) Derive the equation for multiplet width small compared to kT.

(2) What is RS term symbol? Explain with example.

(3) Explain Gouy's methods for determination of magnetic susceptibility.

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

(1) Briefly explain catalytic cycle to synthesis acetic acid.

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

(1) Discuss the O.A. and C-H bond activation reaction.

(2) Write a note on insertion reaction of CO.

(3) Explain the Wacker (Smidt) process in detail.

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

(1) Discuss the importance and deficiency of Fe and Co in biological system.

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

(1) Discuss toxicity and toxic effect of some metal in biological system.

(2) Write a note on oxygen carrier device in biological system.

(3) What is iron-Sulphur protein? Discuss in detail.

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

(1) Briefly discuss the structure and preparation of phosphazenes.

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

(1) Give the preparation method of borazine.

(2) Discuss the classification of silicone polymers.

(3) Write a detail note on silicates with three-dimensional network.

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

(1) Discuss the cause of interest in nanomaterials briefly.

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

(1) Discuss chemical and magnetic properties of nanomaterial in detail.

(2) Write a detail note on classification of nanomaterials.

(3) Give some application of nanomaterials.

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