

Enrollment No: _____

Exam Seat No: _____

C.U.SHAH UNIVERSITY

Winter Examination-2020

Subject Name: Inorganic Chemistry-I

Subject Code: 5SC01ICH1

Branch: M.Sc. (Chemistry)

Semester: 1

Date: 08/03/2021

Time: 11:00 To 02:00

Marks: 70

Instructions:

- (1) Use of Programmable calculator and any other electronic instrument is prohibited.
 - (2) Instructions written on main answer book are strictly to be obeyed.
 - (3) Draw neat diagrams and figures (if necessary) at right places.
 - (4) Assume suitable data if needed.
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SECTION – I

- Q-1 Attempt the following questions: (07)**
- Define Hybridization. (1)
 - $\nabla^2\Psi + 8\pi^2m/h^2 (E-V) = 0$ Name all the terms in equation. (1)
 - Write final secular equation for hydrogen molecule ion H_2^+ . (1)
 - What is magnetic induction? (1)
 - What is the effect of temperature on susceptibility of ferromagnetic substance? (1)
 - Define Neel point temperature. (1)
 - What is magnetically concentrated substance? (1)
- Q-2 Attempt all questions (14)**
- What is Huckel's π -electron theory? Explain. (7)
 - Explain bond angle in sp hybridization (7)
- OR**
- Q-2 Attempt all questions (14)**
- Explain bond angle in sp^3 hybridization. (14)
- Q-3 Attempt all questions (14)**
- Derive Van Vleck equation. (14)
- OR**
- Q-3 Attempt all questions (14)**
- Explain types of magnetic bodies. (8)
 - Explain effect of temperature on susceptibility of paramagnetic, diamagnetic ferromagnetic and anti-ferromagnetic substance. (6)



SECTION – II

- Q-4 Attempt the following questions (07)**
- a. In Mossbauer spectroscopy why sample and absorber are put in crystal lattice? (1)
 - b. Why $[\text{Fe}(\text{CN})_6]^{2+}$ complex doesn't shows Quadrupole splitting? (1)
 - c. Which reagent is better for determination of Palladium? α -Nitroso- β -Naphthol or DMG? (1)
 - d. Who observed Mossbauer spectroscopy first and when? (1)
 - e. Draw the structure of Ni-DMG complex (1)
 - f. Give the uses of Aluminon. (1)
 - g. Give the structure of potassium iodate. (1)
- Q-5 Attempt all questions (14)**
- a. Describe chemical shift with example. (7)
 - b. Explain instrumentation of Mossbauer spectroscopy. (7)
- OR**
- Q-5 Attempt all questions (14)**
- a. Explain Magnetic splitting. (6)
 - b. Write brief note on Ammonium Vanadate. (8)
- Q-6 Attempt all questions (14)**
- a. Write advantages of ceric salts. (7)
 - b. Write advantages of organic reagents. (7)
- OR**
- Q-6 Attempt all questions (14)**
- a. Write brief note on EDTA. (7)
 - b. Write brief note on oxime. (7)

