Enrollment No: _____ Exam Seat No:_____

C. U. SHAH UNIVERSITY

Winter Examination-2022

Subject Name : Inorganic Chemistry-I

Subject Code : 5SC01ICH1 **Branch: M.Sc. (Chemistry)**

Semester : 1 **Date : 02/01/2023** **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.

SECTION – I

Q-1 **Attempt the Following questions** **(07)**

a. Define: Magnetic susceptibility **01**
b. Write formula of intensity of magnetization. **01**
c. Magnetic momentum values depend on _____ and _____. **01**
d. What is curie temperature? **01**
e. Define : hybridisation **01**
f. What are conjugated molecules ? **01**
g. Molecule showing sp^2 hybridisation has bond angle of _____. **01**

Q-2 **Attempt all questions** **(14)**

A Evaluate the co-efficient of wave function for sp hybrid orbitals and prove that the angle between two hybrid orbital is 180^o. **10**

B Give difference between BMO and ABMO. **04**

OR

Q-2 **(14)**

What is Huckel's π-electron theory? Explain its applications to Ethylene.

Q-3 **Attempt all questions** **(14)**

A Explain Gouy method to measure the magnetic susceptibility. **07**

B Write a brief note on paramagnetic substance. **07**

OR

Q-3 **Attempt all questions** **(14)**

A Explain diamagnetism and derive equation for diamagnetic momentum. **07**

B Discuss effect of temperature on different types of magnetic substance. **04**

C Write characteristics of diamagnetism. **03**

SECTION – II

Q-4 **Attempt the Following questions** **(07)**

a. Draw the structure of DMG. 01
b. Give uses of ammonium vandate and its structure. 01
c. Write only reaction between phenol and pottasium bromate. 01
d. Draw the structure of aluminon. 01
e. Who observed Mossbauer spectroscopy first and when ? 01
f. In Mossbauer spectroscopy which kind of ray is absorb by absorber? 01
g. Define re coiless emission. 01

Q-5 **Attempt all questions** **(14)**

A Draw schemstic diagram of Mossbauer spectrophotometer in deatails **07**
B Explain quadrupole splitting for Mossbauer spectroscopy. **07**

OR

Q-5 **Attempt all questions** **(14)**

A Discuss basic principle of Mossbauer spectroscopy. **07**
B Descibe isomer shift with example. **07**

Q-6 **Attempt all questions** **(14)**

A Discuss in detail : EDTA **08**
B Write uses and physical properties of cupron. **06**

OR

Q-6 **Attempt all Questions** **(14)**

A Write a note on oxime. **07**
B Write a note on potassium bromate **07**