

C.U.SHAH UNIVERSITY

Summer Examination-2017

Subject Name: Inorganic Chemistry-II

Subject Code: 5SC02ICH1

Branch: M.Sc.(Chemistry)

Semester: 2

Date: 02/05/2017

Time: 02:00 To 05:00

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 ESR silent system. (1)
 - Give the principle of ESR spectroscopy. (1)
 - Which is the necessary condition for a compound to be studied by ESR? (1)
 - Give the biological function of Ca in human body. (1)
 - Give the name of a disease caused by the deficiency of copper in human body. (1)
 - Give the structure of Heme-a. (1)
 - What is the function of myoglobin? (1)
- Q-2 Attempt all questions (14)**
- Discuss factors affecting g value. Calculate the g value if the methyl radical shows ESR at 3290 G (0.3290 T) in a spectrometer operating at 9230 MHz. [where $h = 6.627 \times 10^{-34}$ Js, $\beta = 9.274 \times 10^{-24}$ JT⁻¹]. (7)
 - Discuss instrumentation of ESR spectrophotometer. (7)
- OR**
- Q-2 Attempt all questions (14)**
- Write a note on hyperfine splitting in ESR. (7)
 - Explain ESR spectra of methyl free radical. (7)
- Q-3 Attempt all questions (14)**
- Give classification of elements according to their action in biological system. (6)
 - Discuss physiology of blood. (5)
 - Why Zn is considered as super acids for biochemical system? (3)
- OR**
- Q-3**
- Write a note on iodine and thyroid hormone. (6)
 - Explain toxic effect of Cd and CO. (5)
 - What are the criteria for essential elements? (3)



SECTION – II

- Q-4** **Attempt the Following questions** **(07)**
- a. Define ion exchangers. **(1)**
 - b. Define eluent. **(1)**
 - c. Define effluent. **(1)**
 - d. Define oxyanions. **(1)**
 - e. What is Zeise salt? **(1)**
 - f. Give example of tetrahepto ligand. **(1)**
 - g. Define organometallic compound. **(1)**
- Q-5** **Attempt all questions** **(14)**
- a. Explain types of ion-exchangers on the basis of functional groups of the resins. **(6)**
 - b. Write a note on ion-exchange resins. **(5)**
 - c. Discuss the separation of chloride and bromide on an anion exchanger. **(3)**
- OR**
- Q-5** a. Explain theory and principle of ion exchange chromatography. **(6)**
- b. Write a note on ion-exchange cellulose. **(5)**
 - c. What are the advantages and disadvantages of ion exchange chromatography? **(3)**
- Q-6** **Attempt all questions** **(14)**
- a. What are different methods for preparation of σ -bonded organometallic compounds? Explain any four. **(5)**
 - b. Give the difference between σ -bonded and π -bonded organometallic compounds. **(5)**
 - c. Discuss bonding and structure of metal-alkene complexes. **(4)**
- OR**
- Q-6** **Attempt all Questions**
- a. Explain nucleophilic and electrophilic reactions of η^2 -alkene complexes. **(5)**
 - b. Discuss the preparation of η^3 -allyl complexes. **(5)**
 - c. Discuss NMR studies of metal alkene complexes. **(4)**

