

**UG 4<sup>th</sup> Semester Examination 2022**

**CHEMISTRY**

**[HONOURS]**

**Course Code: CEMHT-9 (Inorganic)**

**Full Marks: 10**

**Answer any *five* questions from the following:**

**[2x5=10]**

1. Write a short note on packing fraction and nuclear binding energy.
2. a) What is radiocarbon dating? b) Write the IUPAC name of the super heavy element having atomic number 102.
3. Write the structure and properties of inorganic benzene.
4. Write a short note on noble gas clathrates.
5. ii) What is the EAN of Mn in  $\text{Mn}_2(\text{CO})_{10}$
6. Draw the structures of beryllium chloride (both in solid and vapor state) and beryllium hydride.
7. Write the IUPAC nomenclature of the following coordination compounds:
  - i)  $[\text{CrCl}_2(\text{en})_2]_2\text{SO}_4$
  - ii)  $[\text{PdI}_2(\text{ONO})_2(\text{H}_2\text{O})_2]$
8. Which geometrical isomer of  $[\text{Co}(\text{en})_2\text{Cl}_2]^+$  shows optical isomerism? Draw the structure of its geometrical and optical isomers.