UG 1st Semester Examination 2022

CHEMISTRY [HONOURS]

Course Code: CHEM-H-CC-T-01

Full Marks: 10

Answer any five questions [2×5=10]

1. Determine the wave number in cm^{-1} of energy 19.875×10^{-13} ergs.

2. Calculate the frequency of light emitted for an electron transition from the 6^{th} to the 2^{nd} orbit of the hydrogen atom. In what region of the spectrum does this light occur?

3. Calculate the ratio of the value of Rydberg constant of Be^{3+} ion with that of He^{+} ion.

4. What will be the four quantum numbers of a 4d electron?

5. In the periodic table, what can you predict about the properties of elements in columns 1A, 2A, 6A, and 7A? And how is column 8A unique?

6. Calculate σ and Zeff. values for 4s electron in Cu (Z = 29).

7. How does electron affinity depend on effective nuclear charge?

8. Explain the effect of temperature rise on the mean free path of an ideal gas held at constant pressure.