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School of Basic Sciences
Bachelor of Science Honours in Chemistry
Mid Term Examination - Nov 2023

Duration : 90 Minutes
Max Marks : 50

Sem I - C1UB103B - Atomic Structure and Chemical Bonding

General Instructions

Answer to the specific question asked

Draw neat, labelled diagrams wherever necessary

Approved data hand books are allowed subject to verification by the Invigilator

- 1) Summarize the bohr model of an atom. K2 (2)
- 2) Why 4s orbitals are filled earlier than 3d orbitals? K1 (3)
- 3) Illustrate the different set of quantum numbers with an example. K2 (4)
- 4) Explain Heisenberg's Uncertainty Principle with its physical significance. Does it have any significance in our daily life? K2 (6)
- 5) Utilize the slater rule for Calculating the effective nuclear charge for 4s electron in calcium. K3 (6)
- 6) Apply the concept of slater rule for Calculating the effective nuclear charge for 3d electron in Fe. K3 (9)
- 7) Compare the ionization energies of elements across periods and down groups. Analyze the reasons for the observed trends and their implications in predicting chemical behavior. K4 (8)
- 8) Analyze the differences between orbit and orbital. K4 (12)

OR

Analyze the concept of Hund's rule, explain the distribution of electrons in the subshells of an atom and how it affects the atom's magnetic behavior. K4 (12)