INORGANIC TEST Bsc. IST YEAR SECTION (A)

1. Calculate de –Broglie wavelength of an electron (mass = 9.1x 10-31 kg) moving at 1% speed of light. (h = 6.63x 10 -34 kg m2s-1)
2. An electron is moving with a kinetic energy of 2.275x10 -25J.Calculate its de-Broglie wavelength.
3. Explain the derivation of de-Broglie relationship.
4. What is effective nuclear charge? Calculate the effective nuclear charge for one of the outer electrons (2p) of oxygen atom.
5. The atomic number of zinc is 30.calculate the effective nuclear charge for (i) an electron in 4s orbital.(ii) an electron in 3d orbital.
6. What is quantum number? Define any two quantum number.
7. Explain the energy level diagram in case of N2 and CO.
8. Explain the postulates of VSEPR THEORY.
9. Calculate the percentage ionic character of HF molecule from the following data.

bond distance = 0.92 A0, dipole moment = 1.91 D.