BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(MID SEMESTER EXAMINATION)

CLASS: IMSC **SEMESTER: I**
BRANCH: CHEMISTRY **SESSION : MO/2019**

SUBJECT : CH103 INORGANIC CHEMISTRY-I

TIME: 2.00 HOURS **FULL MARKS: 25**

INSTRUCTIONS:
1. The total marks of the questions are 25.
2. Candidates may attempt for all 25 marks.
3. Before attempting the question paper, be sure that you have got the correct question paper.
4. The missing data, if any, may be assumed suitably.

Q1 (a) Two particles A and B are in motion. If the wavelength associated with the particle A is 5×10^{-8} m, calculate the wavelength of particle B if its momentum is half of A. [2]

Q1 (b) Discuss the significance of Heisenberg's uncertainity principle. [3]

Q2 (a) For 1s and 2s orbitals, the maximum electron density is at nucleus. Draw the graph and explain. [2]

Q2 (b) How it can be rectified in radial probability distribution function? [3]

Q3 (a) Arrange the halogens in order of their increasing electron gain enthalpy with reason. [2]

Q3 (b) Calculate the Zeff for (i) P (ii) Sr (iii) Mn for 3d electron [3]

Q4 (a) The electron gain enthalpy of chlorine is 349 $KJmol^{-1}$. How much energy in KJ is released when 1 g of Chlorine is completely converted to Cl^- ions in gaseous state? [2]

Q4 (b) Discuss the Alfred-Rochow electronegativity. [3]

Q5 (a) Explain the importance of Kapustinskii equations. [2]

Q5 (b) CsCl lattice is less stable than NaCl structure-justify. Calculate the limiting radius ratio for fluorite structure unit lattice. [3]

:::::: 15/10/2019 M ::::::