Roll No. | | | | | | | | | | | | **Total No. of Pages : 02**

Total No. of Questions : 09

B.Sc. (Non Medical) (Sem.–1)

INORGANIC CHEMISTRY

Subject Code : BSNM-102-18

M.Code : 75743

Date of Examination : 14-01-2023

Time : 3 Hrs. **Max. Marks : 50**

INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying ONE mark each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

SECTION-A

1. Define the following :

a) State Pauli's exclusion principle.

b) Determine whether the following functions are normalizable or not over the indicated intervals : e^x $(0, \infty)$

c) What do you mean by effective nuclear charge?

d) Write down one example of pervoskite structure.

e) Mention one example of semiconductor.

f) Write down the shape of BeH_2 molecule.

g) Calculate the bond order of N_2^+.

h) What is Frenkel defect?

i) Write down the limitations of Aufbau principle.

j) Explain which of the following orbitals are not possible: lp, 2s, 2p, 3f.

SECTION-B

2. Write a short note of different quantum number n, 1, m?

3. Write a short note on face centered cubic lattice (fcc) and Schottky defect.

4. What is radius ratio? How can it help to predict the structure of an ionic crystal?

5. Draw the resonating structure of CO_2, SCN^-, O_2, NO_2, LiH, BeH_2.

6. Describe the role of lattice energy and solvation energy.

SECTION-C

7. Draw the molecular orbital energy level diagram of N_2 molecule.

8. Draw and explain the structure of CaF_2.

9. What do you mean by effective nuclear charge and screening effect? How can the electron affinity be estimated from lattice energy?

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.