Roll No. .....

91051

B. Sc. Bio-Technology

1st Semester w. e. f. 2012-13

Examination – November, 2019

INORGANIC CHEMISTRY

Paper : BT - 106

Time : Three Hours] *[Maximum Marks : 40*

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt ***five*** questions in all, selecting ***one*** question from each Section. Question No. 1 is ***compulsory***. All questions carry equal marks.

1. (a) Name the part of wave Function which govern's the shape of the orbital. 1 × 8 = 8

(b) Give the general electronic configuration of P-Block element.

https://www.mdustudy.com

(c) What is hybridization of central Atom in Methane (CH_4) ?

(d) Define Radius Ratio.

(e) What is the Co-ordination Number of Na in NaCl ?

(f) Define Electronic configuration.

(g) Define electro negativity.

(h) What is the Full Form of VSEPR in VSEPR theory ?

SECTION – A

2. (a) If the Uncertainty in position (Δx) of a ball of mass 1 kg is of the order of 1 A°. Calculate the uncertainty in its velocity. 3

(b) State and explain the Applications of Aufbau principle. 3

(c) Calculate the number of electron in Magnesium Whose (n + lx) value is one. 2

3. (a) Find out the Number of waves made by a Bohr electron in one complete revolution in the 3rd orbit. 2

(b) Using Heisenberg uncertainty prove that an electron cannot exist into the Nucleus. 3

(c) Arrange the given orbitals 3S, 4d and 5p in terms of their (n + l) rules. 3

SECTION – B

4. (a) Using Slater's rule, calculate the effective nuclear charge for a 3d electron in case of *chromium*. 2

(b) Explain Mulliken scale of Electro negativity. 2

(c) Explain the Factor Affecting Ionisation potential. 4

5. (a) What is the trend in the size of N^{3-}, O^{2-} and $\bar{F}$? 2

(b) Why Ionisation energy of B is less than that of Be and of O is less than that of N ? 3

(c) How will you account for the oxidising and Reducing behaviour of element in the periodic table ? 3

SECTION – C

6. (a) Explain the structure of SF_6 on the basis of Hybridization. 4

(b) Explain the Magnetic behaviour, Bond order in No using M. O. Diagram. 4

7. (a) Explain the structure of SF_4 on the basis of VSEPR Theory. 4

(b) What is Hybridization ? What are the important Characteristic of Hybridization ? 4

SECTION – D

8. (a) Explain the following : 4

(i) Fajan's rule

(ii) Born Haber Cycle

(b) Explain the structure of NaCl. 2

(c) Give difference between n-semiconductor and p-semiconductor. 2

9. (a) Explain the following 6

(i) Radius Ratio

(ii) Stoichiometric defect

(b) Explain the structure of ZnS 2