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SUBJECT CODE NO: - YY-2331
FACULTY OF SCIENCE AND TECHNOLOGY
B.Sc. F.Y (Sem-I)
Examination May / June - 2023
Chemistry Paper-I Inorganic Chemistry

[Time: 1:30 Hours]

[Max. Marks: 40]

Please check whether you have got the right question paper.

N. B

- 1) All questions are compulsory.
- 2) All questions carry equal marks
- 3) Draw neat diagrams and give labels wherever necessary.
- 4) figures to the right indicate full marks.

Q1 Explain Bohr's atomic model and give it's limitations. 10

OR

- a. Explain different characteristics of ionic bond formation. 10
- b. Define lattice energy? Explain factors affecting lattice energy

Q2 Define hybridization? Explain-types of hybridization, 10

OR

- a. why He_2 molecule does not exist? Explain on the basic of molecular orbital theory? 10
- b. Draw the molecular orbital diagram (MO) for hetero -nuclear diatomic molecule co and calculate bond order.

Q3 Write short Notes on (Any two) 10

1. Aufbau's principle
2. Born - Haber cycle
3. valence - Bond theory CVBT)
4. Molecular -orbital theory (MOT)

Q4 Attempt the following 10

1. As the principle quantum number increases, the size of the 's' orbital ____
 - a. Decrease b. Increases c. Remain constant d. Fluctuate
2. Born Haber cycle is an energy cycle for _____
 - a. Aqueous solution
 - b. solid compounds
 - c. Ionic compounds
 - d. Molecular compounds
3. Valence bond theory was proposed by _____
 - a. Rutherford b, Niels Bohr c. Heitler and London d. Hund & Mullikan

4. In sp hybridization the resultant orbitals have _____ % of s ' and _____ % of ' P ' character respectively.
a. 25, 75 b. 75, 25 c. 20, 80 d. 50, 50
5. The shape of the orbital is given by _____
a. Magnetic quantum number
b. Spin quantum number
c. Azimuthal quantum number
d. Principle quantum number
6. A chemical bond formation that involves complete transfer of electrons between atoms is _____
a. Ionic bond b. Covalent bond c. Metallic bond d. Dative bond
7. The concept of mixing atomic orbitals for the Formation of new hybrid orbitals is –
a. Allocation
b. Hybridization
c. chemical bond formation
d. Electron configuration.
8. Bond order of CO molecule is _____
a. 3 b. 7 c. 1 d. 2
9. From the following which of the molecule has the smallest bond angle?
a. H_2O b. H_2S c. NH_3 d. SO_2
10. From the following, which molecule have highest bond order.
a. O_2^+ b. O_2^- c. O_2^{2-} d. O_2