Model Question Paper

Atomic Structure - II -Part IV

12th Standard

Chemistry

Reg.No. : | | | | | | |

I.Answer all the questions.
II.Use Blue pen only.

Time : 01:30:00 Hrs

Total Marks : 60

Section-A

5 x 1 = 5

1) The energy of electron in Hydrogen atom is $-328kJmol^{-1}$ .Then the energy level in which the electron present is

   (a) 4 (b) 3 (c) 2 (d) 1

2) Molecular orbital with less energy is

   (a) σ_{1s} (b) σ^*_{1s} (c) π_{2py} (d) π^*_{2py}

3) The circumference of the circular orbit of the electron should be an integral multiple of

   (a) Planck's constant (b) Frequency of light radiation (c) de-Brogile wavelength (d) Momentum of the electron

4) Which of the following orbitals is not symmetrical about the x-axis?

   (a) p_x (b) $d_{x^2-y^2}$ (c) s (d) d_{yz}

5) Which of the following is having dump bell shaped orbital with doughnut shaped electron cloud at the centre

   (a) p_x (b) d_{xy} (c) $d_{x^2-y^2}$ (d) d_{z^2}

Section-B

5 x 3 = 15

6) How is hydrogen molecule formed? Explain the nature of the bond and magnetic character.

7) What is hydrogen bonding?

8) What are the conditions for effective hydrogen bonding?

9) What is intermolecular hydrogen bonding? Given an example.

10) State any three importance of hydrogen bonding.

Section-C

4 x 5 = 20

11) What is hybridisation?Explain the salient features of hybridisation?

12) Write notes on intermolecular forces.

13) Explain intermolecular hydrogen bonding with suitable examples.

14) Explain intramolecular hydrogen bonding with examples. Explain the consequences of intramolecular hydrogen bonding.

Section-D

2 x 10 = 20

15) a) How is wave character of an electron verified by Davisson and Germer experiment?

    b) How will you verify the particle character of an electron?

16) a) Explain the formation of N_2 molecule by using molecular orbital theory.

    b) Write notes on the shapes of d-orbitals.

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