Model Question paper

Atomic Structure - I 3

11th Standard

Chemistry

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

I. Answer all the questions.

II. Use blue pen only.

Time : 01:30:00 Hrs

Total Marks : 50

Part - A

10 x 1 = 10

1) Atomic mass of an element is not necessarily a whole number because :

(a) It contains electrons, protons and neutrons (b) It contains allotropic forms (c) Atoms are no longer considered indivisible (d) it contains isotopes (e) None of these

2) No two electrons in an atom will have all four quantum numbers equal. The statement is known as

(a) Exclusion principle (b) Uncertainity principle (c) Hund's rule (d) Aufbau principle (e) Newlands law

3) When the 3d orbital is complete, the new electron will enter the

(a) 4p orbital (b) 4f orbital (c) 4s orbital (d) 4d orbital (e) 5s orbital

4) The number of orbitals in a p-sub-shell is

(a) 1 (b) 2 (c) 3 (d) 6 (e) 5

5) The nucleus of an atom contains:

(a) Electrons and protons (b) Neutrons and protons (c) Electrons, protons and neutrons (d) Neutrons and electrons (e) None of these

6) Which of the following has no neutrons in the nucleus?

(a) Deuterium (b) Helium (c) Hydrogen (d) Tritium (e) An alpha particle

7) 2p orbitals have:

(a) n=1, l=2 (b) n=1, l=0 (c) n-2, l=0 (d) n-2, l=1

8) The atomic number of an elements is 17 and its mass number is 37. The number of protons, electron and neutrons present in the neutral atom are:

(a) 17,37,20 (b) 20,17,37 (c) 17,17,20 (d) 17,20,17 (e) 37,20,17

9) The maximum number of electrons that can be accommodated in the nth levels is:

(a) n^2 (b) n+1 (c) n-1 (d) $2n^2$ (e) 2+n

10) The magnetic quantum number decides:

(a) The distance of the orbital from the nucleus (b) The shape of the orbital (c) The orientation of the orbital in space (d) The spin of the electron (e) None of these

Part - B

5 x 2 = 10

11) What is atomic number?

12) How many orbitals are there in the second orbit? How are they designated?

13) Give the order of filling of electrons in the following orbitals 3p,3d,4p,3d, and 6s.

14) What are the particles generally present in the nuclei of atoms?

15) What is the principal defect of Bohr atom model?

Part - C

5 x 3 = 15

16) Write the complete symbol for:

The nucleus with atomic number 26 and mass number 55

17) Give the electronic configuration of chromium. (Z=24)

18) How many electrons can have s+1/2 in a d-sub-shell

19) What is shape of the orbital with

n=2 and l=0

20) Give the electronic configuration of Mn^{2+} and Cu. Atomic number of Cu=29 and Mn=25

Part - D

3 x 5 = 15

21) Using the s, p, d, notation, describe the orbital with the following quantum numbers?n=1, l=0

22) Using the Aufbau principle, write the electronic configuration in the ground state of the following atoms: Boron (Z=5) Neon (Z=10) and Aluminium (Z=13)

23) Explain the various quantum numbers which completely specify the electron of an atom.

****