

Model Question paper

Atomic Structure - I 1

11th Standard

Chemistry

Reg.No. :

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I. Answer all the questions.

II. Use blue pen only.

Time : 01:30:00 Hrs

Total Marks : 50

10 x 1 = 10

Part - A

- 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) Uncertainty 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 preference of three unpaired electrons in the nitrogen atom can be explained by:
(a) Pauling's exclusion principle (b) Aufbau principle (c) Uncertainty principle (d) Hund's rule (e) None of these
- 5) The number of orbitals in a p-sub-shell is
(a) 1 (b) 2 (c) 3 (d) 6 (e) 5
- 6) Which of the following has no neutrons in the nucleus?
(a) Deuterium (b) Helium (c) Hydrogen (d) Tritium (e) An alpha particle
- 7) When the value of the azimuthal quantum number is 3, the magnetic quantum number can have values:
(a) +1, -1 (b) +1, 0, 1 (c) +2, +1, 0, -1, -2 (d) +3, +2, +1, 0, -1, -2, -3 (e) +3, -3
- 8) 2p orbitals have:
(a) $n=1, l=2$ (b) $n=1, l=0$ (c) $n=2, l=0$ (d) $n=2, l=1$
- 9) The atomic number of an element 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
- 10) 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) $2+n$

Part - B

5 x 2 = 10

- 11) What is the charge of an electron, proton and a neutron?
- 12) What is atomic number?
- 13) How many orbitals are there in the second orbit? How are they designated?
- 14) What is an orbital?
- 15) Give the order of filling of electrons in the following orbitals 3p, 3d, 4p, 3d, and 6s.

Part - C

5 x 3 = 15

- 16) Write the complete symbol for:
The nucleus with atomic number 26 and mass number 55
- 17) Write the complete symbol for:
The nucleus with atomic number 4 and mass number 9.
- 18) An atomic orbital has $l=3$. What are the possible values of m ?
- 19) Give the electronic configuration of chromium. ($Z=24$)
- 20) An atom of an element has 19 electrons. What is the total number of p-orbital?

Part - D

3 x 5 = 15

- 21) Describe Aufbau principle. Explain its significance in the electronic build up of atoms.
- 22) Using the s, p, d, notation, describe the orbital with the following quantum numbers? $n=1, l=0$
- 23) Using the s, p, d, notation, describe the orbital with the following quantum numbers?
 $n=3, l=1$
