

Class 11 Chemistry Chapter 2 Structure of Atom MCQs

1. Neutron was discovered by -----

- (a) J.J Thomson (b) Chadwick
(c) Rutherford (d) Priestley

Answer: (b) Chadwick

Explanation: Chadwick (1932) discovered the neutral particles Neutron.

2. The nucleus of the atom consist of -----

- (a) Protons and neutrons (b) Protons and electrons
(c) Neutrons and electrons (d) Protons, neutrons and electrons

Answer: (a) Protons and neutrons

Explanation: The nucleus of the atom consists of protons and neutrons.

3. The radius of an atomic nucleus is of the order of-----

- (a) 10^{-10} cm (b) 10^{-13} cm (c) 10^{-15} cm (d) 10^{-8} cm

Answer: (b) 10^{-13} cm

Explanation: The radius of an atomic nucleus is of the order of 10^{-13} cm.

4. Isotopes of an element have -----

- (a) Different chemical and physical properties
(b) Similar chemical and physical properties
(c) Similar chemical but different physical properties
(d) Similar physical but different chemical properties

Answer: (c) Similar chemical but different physical properties

Explanation: Atoms of the same element which have the same atomic number but different mass number are called isotopes. So they have Similar chemicals but different physical properties.

5. Which of the following pairs represents isobars?

- (a) $^3\text{He}_2$ and $^4\text{He}_2$ (b) $^{24}\text{Mg}_{12}$ and $^{25}\text{Mg}_{12}$
(c) $^{40}\text{K}_{19}$ and $^{40}\text{Ca}_{20}$ (d) $^{40}\text{K}_{19}$ and $^{39}\text{K}_{19}$

Answer: (c) $^{40}\text{K}_{19}$ and $^{40}\text{Ca}_{20}$

Explanation: Atoms of different elements that have the same mass number but different atomic numbers are called isobars.

6. The atomic orbital is -----

- (a) The circular path of the electron
(b) Elliptical shaped Orbit
(c) Three- dimensional field around nucleus
(d) The region in which there is maximum probability of finding an electron

Answer: (d)

Explanation: The region in which there is maximum probability of finding an electron is called orbital.

7. Principal, Azimuthal and magnetic quantum numbers are respectively related to:

- (a) Size, shape and orientation
(b) Shape, size and orientation
(c) Size, orientation and shape
(d) None of the above

Answer: (a) Size, shape and orientation

Explanation: Principal, Azimuthal and magnetic quantum numbers are respectively related to Size, shape and orientation.

8. The electronic configuration of chromium (Z=24) is:

- (a) $[\text{Ne}] 3s^2 3p^6 3d^4 4s^2$ (b) $[\text{Ne}] 3s^2 3p^6 3d^5 4s^1$
(c) $[\text{Ne}] 3s^2 3p^6 3d^1 4s^2$ (d) $[\text{Ne}] 3s^2 3p^6 4s^2 4p^4$

Answer: (b) $[\text{Ne}] 3s^2 3p^6 3d^5 4s^1$

Explanation: The electronic configuration of chromium ($Z=24$) is $[\text{Ne}] 3s^2 3p^6 3d^5 4s^1$.

9. According to Aufbau principle a new electron enters the orbitals when:

- (a) $(n + l)$ is minimum (b) $(n + l)$ is maximum
(c) $(n + m)$ is minimum (d) $(n + m)$ is maximum

Answer: (a) $(n + l)$ is minimum

Explanation: According to the Aufbau principle a new electron enters the orbitals when $(n + l)$ is minimum. So the 4s orbital filled first than the 3d orbital.

10. Which of the following is not permissible?

- (a) $n=4, l=3, m=0$ (b) $n=4, l=2, m=1$
(c) $n=4, l=4, m=1$ (d) $n=4, l=0, m=0$

Answer: (c) $n=4, l=4, m=1$

Explanation: The value of Azimuthal quantum number always lies between 0 to $n-1$. If $n=4$, then $l=4$ is not possible.