

## STRUCTURE OF THE ATOM

### 1. The charge/ mass ratio of electron:

- Depends on the nature of the electrodes
- Depends upon nature of the gas
- Remains constant
- Depends on both nature of the gas and nature of the electrode

### 2. A student weighs 30kg. Suppose his body is entirely made of electrons. How many electrons are there in his body? Mass of an electron = $9.1 \times 10^{-31} \text{ kg}$

- $3.29 \times 10^{31}$
- $3.29 \times 10^{30}$
- $3.29 \times 10^{23}$
- $3.29 \times 10^{32}$

### 3. Which of the following is correct?

- | Column 1     | Column 2             |
|--------------|----------------------|
| A. Electrons | i. Positive charge   |
| B. Protons   | ii. No charge        |
| C. Neutrons  | iii. Negative charge |
- A-iii, B-ii, C-i
  - A-iii, B-i, C-ii
  - A-ii, B-iii, C-i
  - A-ii, B-i, C-iii

### 4. If K, L, M, N shells of an atom are full, the total number of electrons in the atom are:

- 60
- 26
- 42
- 36

### 5. Which of the following are positively charged ions:

| Atoms | Protons | Electrons | Neutrons |
|-------|---------|-----------|----------|
| A     | 17      | 17        | 18       |
| B     | 12      | 10        | 12       |
| C     | 16      | 17        | 20       |
| D     | 1       | 0         | 0        |
| E     | 18      | 18        | 22       |
| F     | 10      | 10        | 10       |

- A and B
- C and D
- B and D
- D and F

### 6. The electronic configuration of Cl(17) is:

- 2,8,7
- 2,2,8,5
- 2,8,2,5
- 2,2,5,8

### 7. Composition of the nuclei of two atomic species are given:

|   | X | Y |
|---|---|---|
| P | 7 | 8 |
| N | 9 | 8 |

The mass number of x and Y and their relation is

- 16,16; isotopes
- 17,15; isotopes
- 17,15; isotopes
- 16,16; isobars

### 8. $\text{Na}^+$ has 12 neutrons and 10 electrons. Which of the following statements is correct?

- $\text{Na}^+$  has atomic number 10 and mass number 22.
- $\text{Na}^+$  has atomic number 11 and mass number 23.
- $\text{Na}^+$  has atomic number 10 and mass number 23.
- $\text{Na}^+$  has atomic number 11 and mass number 22.

### 9. Which of the following statement is correct about proton?

- It is the nucleus of deuterium
- It is an ionized hydrogen molecule
- It is an ionized Hydrogen atom
- It is an  $\alpha$  particle with unit positive charge

### 10. The highest value of e/m ratio for anode rays is observed when the discharge tube is filled with:

- $\text{N}_2$
- $\text{H}_2$
- He
- Ar

### 11. When a gold foil is bombarded by a beam of $\alpha$ particle, only a few of them get deflected whereas most go straight undeflected. This is because

- The force of attraction exerted on  $\alpha$  particles by the electrons is insufficient
- The volume of nucleus is much smaller than that of the atom
- The force of repulsion acting on the fast moving  $\alpha$  particles is very small
- The neutrons have no effect on  $\alpha$  particles

### 12. Which of the following statements does not belong to Bohr's model?

- Energy of the electrons in the orbit is quantized
- The electrons in the orbit nearest to the nucleus is the lowest energy
- Electrons revolve around the nucleus in different orbits having fixed energies
- The electrons radiate energy during revolution due to force of attraction between nucleus and electrons

### 13. How many electrons, protons and neutrons are present in $\text{X}^+$ , if atomic number of X is 19 and its mass number is 39

- E=19, P=19, N= 20
- E=18, P=19, N= 20
- E=18, P=19, N= 19
- E=19, P=20, N= 20

### 14. Which of the following does not have 8 valence electrons:

- He
- Ne
- Ar
- $\text{Cl}^+$

### 15. Which of the following does not have one electron in its valance shell

- Na
- Li
- H
- Ca