CBT CLASS IX SCIENCE AUGUST (2024)

GENERAL INSTRUCTIONS
TOTAL NO. OF QUESTIONS 10 QUESTIONS.
ALL QUESTIONS ARE COMPULSORY.

1. Name the salts which contain the same number of ions per molecule as magnesium nitride.
a) Aluminium phosphate
b) Potassium sulphite
c) Barium phosphate
d) Magnesium Nitride

2. What would be the gram molecular mass of solid sulphur?
a) 256 g
b) 128 g
c) 64g
d) 32 g

3. The central atom does not acquire stable octet configuration in which of the following molecules?
a) Carbon dioxide
b) Methane
c) Boron trichloride
d) Ammonia

4. According to the law of definite proportions, _____.
a) matter remains constant
b) matter can neither be created nor destroyed matter remains constant
c) a chemical compound is always made up of the same element combined together in the same fixed proportion matter remains constant
d) All of these

5. When alpha-particles are sent through a thin metal foil, most of them go straight through the foil because
a) alpha-particles are much smaller than electrons
b) alpha-particles are positively charged
c) most part of the atom is empty space
d) alpha-particles move with a low velocity

6.The area under a velocity-time graph gives
a) distance
b) acceleration
c) speed
d) displacement

7. A physical quantity which has both magnitude and direction is called
a) scalar quantity
b) vector quantity
c) neither (a) nor (b)
d) either (a) or (b)

8. A freely falling body is said to be moving with
a) constant non-zero acceleration
b) non-uniform motion
c) zero velocity
d) non-uniform acceleration

9. If a body covers equal distance in equal interval of time, the motion is said to be
a) uniform
b) non-uniform motion
c) oscillatory
d) rotatory

10. A body travels along a straight path from its initial position to a point 20 m away and then returns back to its initial position. The change in the position of the body is ____ and the distance travelled is _____
a) 20 m, 40 m
b) 0 m, 40 m
c) 40 m, 40 m
d) 0 m, 0 m

ANSWERS (WITH EXPLANATION)

1 . b and c Potassium sulphite & Barium phosphate
Explanation :Both Potassium sulphite & Barium phosphate contain the same number of ions
2 . a 256 g

Explanation : We know that the atomic mass of sulphur is 32. Therefore, the molecular mass of a molecule of sulphur that is $ { {S}_ {8}}$ will be $32times 8g$ = 256g. Therefore, we can write that the molar mass of solid sulphur is 256 g/mol.

3 . c Boron trichloride

Explanation : Boron trichloride does not follow octet rule due to lack of electron pair on boron atom which is surrounded by 6 electrons. To satisfy octet rule, 8 electrons are required.

4 . c A chemical compound is always made up of the same element combined together in the same fixed proportion matter remains constant

Explanation : Chemical compounds, according to the law of constant proportions, are made of elements present in a fixed ratio by mass. The concentration of each element in a compound will always be the same by mass regardless of the source of the sample.

5 . c most part of the atom is empty space

Explanation : When alpha particles pass through a thin metal foil, most of them continue straight through because atoms are mostly empty space. Imagine the atom as a tiny nucleus at the center, surrounded by a vast region of emptiness. However, a small fraction of alpha particles do get deflected at large angles

6 . c speed

Explanation : The velocity-time graph is a depiction of the variation of the velocity of a body with time.The slope of the velocity-time graph gives the acceleration.

The area of the velocity-time graph is basically the product of velocity and time.

We know that, velocity× time= displacement in the body.

Thus, it is obvious that the area under the velocity-time graph gives the displacement of a moving object.

7 . b vector quantity

Explanation : Vector, in physics, a quantity that has both magnitude and direction. It is typically represented by an arrow whose direction is the same as that of the quantity and whose length is proportional to the quantity's magnitude.

8 . a constant non-zero acceleration

Explanation : Under free-fall, there is no external force acting on the object and only the gravitational pull is acting. Hence it falls under the influence of gravity, assuming that the acceleration due to gravity is constant throughout. So the object is said to be in constant non zero acceleration **.**

9 . a uniform

Explanation : If a body covers equal distance in equal interval of time, the motion is said to be uniform .

10 .b 0 m, 40 m

Explanation : The change in position of the body is 0 m because it returned back to its initial position. The distance travelled by the body is 40 m because it travelled 20 m away from its initial position and then returned back, covering the same distance. Therefore, the correct answer is (b) 0 m, 40 m.