

EINSTEIN'S ACADEMY

10TH SCIENCE

UNIT- 3

Class: 10

Marks: 30

I Choose the correct answer

$6 \times 1 = 6$

1. If the substance is heated or cooled, the linear expansion occurs along the axis of

- a) X or -X
- b) Y or -Y
- c) both a and b
- d) a or b

2. The value of universal gas constant

- a) $3.81 \text{ J mol}^{-1} \text{ K}^{-1}$
- b) $8.03 \text{ J mol}^{-1} \text{ K}^{-1}$
- c) $1.38 \text{ J mol}^{-1} \text{ K}^{-1}$
- d) $8.31 \text{ J mol}^{-1} \text{ K}^{-1}$

3. If the substance is heated or cooled, the change in mass of the substance is

- a) positive
- b) negative
- c) zero
- d) none of the above

4. Temperature is the average _____ of the molecules of a substance

- a) difference in K.E and P.E
- b) sum of P.E and K.E
- c) difference in T.E and P.E
- d) difference in K.E and T.E

5. If a substance is heated or cooled ,the linear expansion occurs along the axis of

- (a) X or -X
- (b) Y or -Y
- (C) both (a) and (b)
- (d) a) or (b)

6. The value of Avogadro number.

- a) 6023×10^{23}
- b) 6.023×10^{23}
- c) 6.023×10^{24}
- d) 6023×10^{24}

II Answer briefly

$8 \times 2 = 16$

7. Distinguish between ideal gas and real gas.

8. Define one calorie.

9. Distinguish between linear and superficial expansion.

10. State Boyle's law.

11. Calculate the coefficient of cubical expansion of a zinc bar. Whose volume is increased from 0.25 m³ to 0.3 m³ due to the change in its temperature of 50 K.

12. What is coefficient of real expansion.

13. State the law of volume.

14. match the following

1. Linear expansion - $1.381 \times 10^{-23} \text{ JK}^{-1}$

2. Superficial expansion - change in volume

3. Cubical expansion - change in area

4. Boltzmann constant - change in length

III Answer in detail.

$$2 \times 4 = 8$$

15. Drive the ideal gas equation.

16. Explain the experiment of measuring the real and apparent expansion of a liquid with a neat diagram.