

STATES OF MATTER

1.A manifestation of surface tension is :

- 1) Rise of liquid a capillary tube
- 2) Spherical shape of liquid drops
- 3) Upward movement of water in soils
- 4) All the above

2.The unit of surface tension is

- 1) Dynes cm^{-2}
- 2) Ergs/cm
- 3) Joules m^{-1}
- 4) N.m^{-1}

3.Generally liquid drops assume spherical shape because :

- 1) A sphere has maximum surface area
- 2) A sphere has minimum surface area
- 3) Sphere is symmetrical in shape
- 4) None of these

4.The surface tension of water at 20°C is $72.75 \text{ dyne cm}^{-1}$. Its value in SI system is

- 1) 2.275 N m^{-1}
- 2) 0.7275 N m^{-1}
- 3) 0.07275 N m^{-1}
- 4) None of the above

5.A surface active substance is :

- 1) Cholesterol
- 2) Alcohol
- 3) Soap
- 4) All

6.On heating a liquid, its surface tension

- 1) Increases
- 2) Decreases
- 3) Remains same
- 4) Is reduced to zero

7.Water drops stick to a glass surface due to :

- 1) Cohesion
- 2) Adhesion
- 3) Flocculation
- 4) None of these

8.Find incorrect match

- 1) Unit of surface energy = J-m^{-2}
- 2) Unit of surface tension (T) = N - m^{-1}
- 3) Molecules on the surface of liquid = less energy.
- 4) Minimum surface area of a liquid = Lowest energy state

9.Sharp glass edges are heated for making them smooth (polishing of glass) which is due to its

- 1) Viscosity
- 2) Surface tension
- 3) Fluidity
- 4) Expansion nature of glass

10.When mercury is dropped over a glass surface the globules are spherical which is due to its

- 1) Viscosity
- 2) Surface tension
- 3) Fluidity
- 4) Metallic nature

11. Liquids show viscosity which is due to

- 1) Creation of friction between the layers of the fluid.
- 2) Inter molecular attraction forces of the liquid.
- 3) Inter molecular repulsion forces of the liquid.
- 4) 1 & 2

12. Find correct statement

- 1) Due to viscosity, velocity of flow of water at the surface is more than that at the bottom in a river.
- 2) Velocity gradient = dv/dx
- 3) Viscosity coefficient is related to absolute temperature as $\eta = A \cdot e^{E/RT}$
- 4) All are correct

13. Laminar flow of a liquid means

- 1) Regular gradation of velocity for layers in passing from one layer to the next layer of a liquid
- 2) Showing constancy in the velocity of layers of a liquid
- 3) Increase in the velocity of layers from surface to bottom of a liquid
- 4) All

14. The viscosity of four liquids P, Q, R and S are 85, 11.4, 18 and 12.3 respectively, then which flows slowly.

- 1) P 2) Q 3) R 4) S

15. The thickness of window panes of old buildings is more at the bottom than at the top, which is due to

- 1) Surface tension of glass
- 2) Viscosity of glass
- 3) Expansion of solid at a given temperature
- 4) Expansion of liquid at a given temperature

16. The graph of viscosity coefficient (η) and absolute temperature (T) is

- 1) Straight line passing through origin
- 2) Straight line parallel to temperature axis
- 3) Straight line with (+)ve slope
- 4) Rectangular hyperbola

17. The internal resistance to flow in liquid is called

- 1) Fluidity 2) Specific resistance 3) Viscosity 4) Surface tension

18. Which has the maximum viscosity ?

- 1) Water 2) Glycol 3) Acetone 4) Ethanol

19. The unit of viscosity is

- 1) Poise 2) Millipoise 3) Centipoise 4) All these

20. Poise stands for

- 1) 1 dynes cm sec⁻² 2) 1 dyne sec cm⁻² 3) 10¹⁸e.s.u.cm 4) 10⁻⁷ erg sec.

21. Which of the following expression regarding the unit of coefficient of viscosity is not true ?

- 1) Dyne cm⁻² s 2) Dyne cm⁻² s⁻¹ 3) Nm⁻²s 4) 1 poise = 10⁻¹ kgm⁻¹s⁻¹

22. In SI system, the units of coefficient of viscosity, are

- 1) Kg s⁻¹m⁻² 2) Kg m⁻¹ s⁻¹ 3) Kg cm⁻¹ s⁻¹ 4) g m⁻¹ s⁻¹

23. With rise in temperature of a liquid, the viscosity

- 1) Increases 2) Decreases 3) Remains constant 4) May increase or decrease

24. With the increasing molecular weight of a liquid, the viscosity

- 1) Decreases 2) Increases 3) No effect 4) All are wrong

25. The presence of ionic salts in a liquid

- 1) Decreases the viscosity of the liquid
2) Increases the viscosity of the liquid
3) Does not effect the viscosity of the liquid
4) None of the above is correct

26. As temperature increases, vapour pressure of a liquid

- 1) increases linearly 2) decreases linearly
3) increases exponentially 4) decreases exponentially

27. Rate of evaporation depends up on

- a) Nature of liquid
b) Surface area of the liquid
c) Temperature
d) Flow of air current over the surface

The correct answer is

- 1) a, b only 2) b, c only
3) a, b, and c only 4) a, b, c and d

28. At a given temperature

- a) Vapour pressure of a solution containing nonvolatile solute is proportional to mole fraction of solvent
- b) Lowering of vapour pressure of solution containing nonvolatile solute is proportional to mole fraction of solute
- c) Relative lowering of vapour pressure is equal to mole fraction of solute

The correct combination is

- 1) a only
- 2) a, b only
- 3) a, b and c only
- 4) b, c only

29. (A) : Increase in temperature increases vapour pressure of a liquid

(R) : Volume of a solution increases by increasing the temperature.

- 1. both A and R are true ,R explains A
- 2. both A and R are true ,R does not explain A
- 3. A is true and R is false

4. A is false but R is true

30. (A) : Rate of evaporation increases with an increase in the surface area of the vessel

(R) : Evaporation is a surface phenomenon

- 1. both A and R are true ,R explains A
- 2. both A and R are true ,R does not explain A
- 3. A is true and R is false

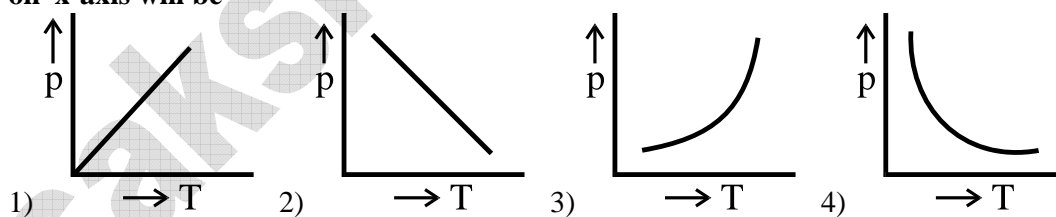
4. A is false but R is true

31. Which of the following statements are correct

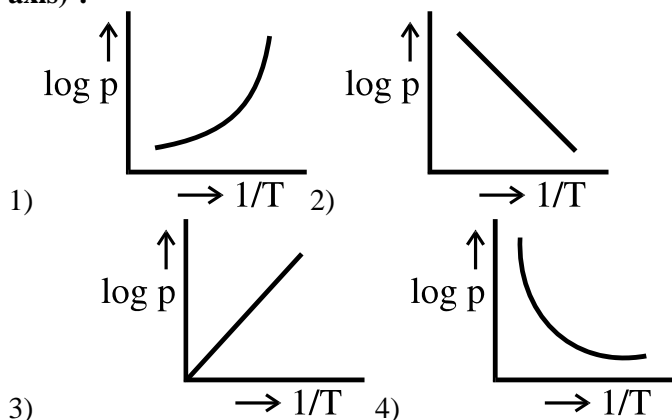
- a) the boiling point of a solution is greater than pure liquid
- b) the temperature where the vapour pressure of liquid equals to atmospheric pressure is called its boiling point
- c) the vapour pressure of pure solvent is less than the vapour pressure of solution containing non volatile solute.
- d) the temperature of liquid remained in the container after evaporation is more than before the evaporation

- 1) a, b
- 2) b, c
- 3) c, d
- 4) a, d

32. The graph obtained by taking vapour pressure (P) of a liquid on y-axis and temperature (T) on x-axis will be



33. Which graph of the following represents the graph between $\log p$ (on Y - axis) and $1/T$ (on X - axis) ?



34. (A): Sea water boils at higher temperature than distilled water
 (R): Addition of non volatile solute to a solvent lowers the vapour pressure

1. both A and R are true ,R explains A
2. both A and R are true ,R does not explains A
3. A is true and R is false
4. A is false but R is true

35. (A): A pressure cooker reduces cooking time
 (R): The boiling point of water inside the cooker is increased

1. both A and R are true ,R explains A
2. both A and R are true ,R does not explains A
3. A is true and R is false
4. A is false but R is true

36) Which statement about evaporation is incorrect

- 1) Evaporation takes place at all temperature
- 2) Evaporation occurs only at the surface
- 3) Evaporation produces cooling
- 4) Average K.E of residual liquid molecules increase as evaporation occurs

37) Vapour pressure of Benzene at its boiling point is

1. 76mm 2. 760mm 3. 760cm 4. 76atm

KEY

- 1) 4 2) 4 3) 2 4) 3 5) 4 6) 2 7) 2 8) 3 9) 2 10) 2
11) 4 12) 4 13) 1 14) 2 15) 2 16) 4 17) 3 18) 2 19) 4 20) 2
21) 2 22) 2 23) 2 24) 2 25) 2 26) 1 27) 2 28) 3 29) 1 30) 2
31) 3 32) 4 33) 1 34) 2 35) 3 36) 4 37) 2

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