CHEMISTRY

BOOKS - PEARSON IIT JEE FOUNDATION

CLASSIFICATION OF MATTER

Very Short Answer Type Questions

1. Define the following terms.

(i) Melting or fusion

(ii) Evaporation

(iii) Condensation

(iv) Solidification

(v) Sublimation

(vi) Melting Point

(vii) Boiling Point

(viii) Liquifaction

(ix) Freezing Point

(x) Critical Temperature

(xi) Matter

(xii) Pure Substance

(xiii) Mixture

(xiv) Element

(xv) Compound

(xvi) Metal

(xvii) Non-metal

(xviii) Metalloids

(xix) Alloy

(xx) Noble metals

View Text Solution

2. What is corrosion ? How does iron get corroded?

Watch Video Solution

3. Blue coloured $CuSO_4$ solution is taken in a beaker. Is the blue solution an element compound or mixture? Is it homogeneous or heterogeneous?

Watch Video Solution

4. How can rust spots on garments be removed?

Watch Video Solution

5. The components of ink are separated by _____

Watch Video Solution

6. How are elements classified based on atomicity? Explain with example.

Watch Video Solution

7. The process due to which some solid substance directly vaporise on heating and solidify on cooling, without becoming a liquid is called _____ .

Watch Video Solution

8. Give two examples for the following mixtures.

(i) Solid : solid homogeneous

(ii) Solid : liquid homogeneous

(iii) Liquid : liquid homogeneous

(v) Gas : gas homogeneous

(vi) Solid : solid heterogeneous

(vii) Solid : liquid heterogeneous

(viii) Liquid : liquid heterogeneous

View Text Solution

9. Write the products obtained in following reactions?

$$\left.\begin{array}{l}(i)Na_2O + H_2O \rightarrow \\ (ii)CO_2 + H_2O \rightarrow \\ (iii)CO + H_2O \rightarrow \\ (iv)SO_2 + H_2O \rightarrow\end{array}\right\} \text{Nature of reactants}$$

Watch Video Solution

10. What is the principle involved in the following methods of separation of mixtures ?

(i) Fractional crystallization

(ii) Magnetic separation

(iii) Gravity method

(iv) Separating funnel method

(v) Distillation

(vi) Fractional distillation

(vii) Preferential liquifaction

(viii) Chromatography

(ix) Fractional evaporation

Watch Video Solution

11. Mention the allotropic forms of following metalloids.

(i) Arsenic

(ii) Antimony

(iii) Selenium

Watch Video Solution

12. What is supernatant liquid?

Watch Video Solution

13. What is the role of platinum in catalytic converter ?

Watch Video Solution

14. In chromatography, the component which has more affinity for the stationary phase

appears at the _____ of the paper.

Watch Video Solution

15. Which property of German silver makes it useful for making imitation jewellery?

Watch Video Solution

16. The kinetic energy of the molecules is _____ in solids than in liquids.

Watch Video Solution

17. State one property of germanium which shows its acidic nature.

Watch Video Solution

18. Certain gases dissolve in water by the process of _____.

Watch Video Solution

19. Name the phenomena causing the following events:

(i) Formation of dew.

(ii) Disappearance of naphthalene balls.

(iii) Drying of wet clothes,

(iv) Formation of snow.

(v) Formation of cloud.

 Watch Video Solution

20. Which metal is used in chemical industries for extracting metals?

Watch Video Solution

21. What is meant by the atomicity of an element?

Watch Video Solution

22. What type of ions do the following form?

(i) a metal

(ii) a non-metal

Watch Video Solution

23. Give two examples of substances which can be separated by the methods.

(i) Fractional crystallization

(ii) Sublimation

(iii) Magnetic separation

(iv) Gravity method

(v) Filtration

(vi) Distillation

(vii) Diffusion

(viii) Solvent extraction

(ix) Dissolution in suitable solvent

View Text Solution

24. The intermolecular forces of attraction between like molecules are called _____ and different molecules are called _____.

Watch Video Solution

25. The molecules of a liquid possess _____ type of motions.

Watch Video Solution

26. For the following properties listed below, arrange solids, liquids and gases either in the increasing or decreasing order as indicated against them.

(i) Diffusibility (ii) Intermolecular spaces

(iii) Thermal expansion (iv) Intermolecular force of attraction

Watch Video Solution

27. Establish antimony as a metalloid on the basis of its metallic property.

Watch Video Solution

28. Under the normal conditions of temperature and pressure, the metal mercury

remains in a _____ state.

Watch Video Solution

29. Thermal expansion in solids is _____than liquids and gases.

Watch Video Solution

30. The temperature at which a liquid changes into a gas on heating at normal atmospheric pressure is called the _____ of that liquid.

Watch Video Solution

Short Answer Type Questions

1. Differentiate between homogeneous and heterogeneous mixtures with examples.

Watch Video Solution

2. Differentiate the following

(a) Evaporation and boiling

(b) Gas and vapour

(c) Metals and non- metals

(d) Pure substances and mixtures

View Text Solution

3. According to the kinetic molecular theory, explain the following.

(a) Density of a solid is the highest.

(b) Gases are highly compressible whereas solids are incompressible.

(c) Liquids and gases are fluids whereas solids are rigid.

View Text Solution

4. State the uses of the followign non-metals.

(a) Oxygen (b) Chlorine (c) Sulphur

Watch Video Solution

5. Explain the procedure for separation of sand water into sand and water.

Watch Video Solution

6. Give examples of noble metals. Why are thy called noble metals?

Watch Video Solution

7. Give the characteristics of _____.

(a) elements (b) compounds. (c) mixtures

Watch Video Solution

8. Give the uses of the folowing metals

(a) Fe (b) Pb (c) Cu (d) Zn

Watch Video Solution

9. Explain the separation of charocoal from sulphur.

Watch Video Solution

10. Solids have definite volume and shape explain.

Watch Video Solution

11. Explain how are the following mixtures separated?

(a) $NH_4Cl - NaCl$ mixture

(b) Sand - sawdust mixture

(c) Chalk - water mixture

View Text Solution

Essay Type Questions

1. What is the method of separation of

(a) $N_2 - CO_2$ mixture,

(b) $H_2 - O_2$ mixture,

(c) NH_4Cl, KCl and sand mixture,

(d) Ink-water mixture

View Text Solution

2. Compare solids, liquids and gases on the basis of their properties.

View Text Solution

3. Name the metalloids and state the reasons why they are categorized as metalloids.

Watch Video Solution

4. Write the main postulates of the kinetic molecular theory ?

Watch Video Solution

5. Compare metals and non-metals based on their physical properties.

Watch Video Solution

True Or False

1. Gas molecules have higher intermolecular forces of attraction due to larger intermolecular spaces.

Watch Video Solution

2. Non-metals usally form acidic oxides.

Watch Video Solution

3. Boiling occurs throughout the liquid.

View Text Solution

4. German silver is an alloy of silver and coper.

Watch Video Solution

5. Distillation is the method used for separation of petrol from water.

Watch Video Solution

6. Glucose-water mixture can be separated by the method of evaporation.

Watch Video Solution

7. Metals form basic oxides or amphoteric oxides.

Watch Video Solution

Fill In The Blanks

1. Decrease of pressure _____the boiling point of a liquid.

View Text Solution

2. Rate of evaporation is increased by increasing _____ and _____.

Watch Video Solution

3. _____ acts as a catalyst during the hydrogenation of vegetable oils.

Watch Video Solution

4. Liquid _____ is used to preserve biological specimens

Watch Video Solution

5. N_2 is _____ in KOH solution while CO_2 is _____.

Watch Video Solution

6. Tincture of iodine is a mixture of _____and _____.

Watch Video Solution

7. Gases cannot be liquefied above a certain temperature called _____.

Watch Video Solution

Match The Following

1.

	Column A			Column B
A.	Mixture of sand and saw dust	( )	a.	Separating funnel
B.	Mixture of nitre and common salt	( )	b.	Heating
C.	Mixture of sulphur and CS_2	( )	c.	Fractional distillation
D.	Mixture of oil and water	( )	d.	Fractional crystallisation
E.	Mixture of alcohol and water	( )	e.	Gravity separation
F.	Mixture of CO_2 and water	( )	f.	Solvent—KOH
G.	Mixture of SO_2 and O_2	( )	g.	Evaporation

View Text Solution

Multiple Choice Questions

1. Brass is not suitable for type making because

A. brass expands on solidification.

B. brass contracts on solidification.

C. brass has less tensile strength.

D. brass has less ductility.

Answer: B::C

Watch Video Solution

2. Which metal is used to galvanize iron sheets?

A. Copper

B. Aluminium

C. Tin

D. Zinc

Answer: C::D

Watch Video Solution

3. Iron possesses good casting properies when compared with copper because

A. iron contracts on solidification.

B. iron expands on solidification.

C. copper expands on solidification.

D. Copper neither contracts nor expands on solidification.

Answer: B::C

Watch Video Solution

4. With the increase in pressure, the boiling point of the liquid _____

Watch Video Solution

5. _____ is used for making photographic films.

A. $AgNO_3$

B. KNO_2

C. AgO

D. AgCl

Answer: C::D

Watch Video Solution

6. Silver tarnishes due to the formation of _____

A. oxide layer.

B. sulphide layer.

C. nitride layer.

D. hydride layer.

Answer: B::C

Watch Video Solution

7. Which among the pairs are separated by using the principle of dissolution in suitable solvent?

A. SO_2 and N_2O_5, KOH as solvent

B. SO_2 and NO_2, KOH as solvent

C. SO_2 and N_2O_3, KOH as solvent

D. SO_2 and NO, KOH as solvent

Answer: C::D

View Text Solution

8. A, B, C, D are four gases. If the order of their critical temperature is as follows D lt B lt C lt A, which of the following gas has the highest boiling point?

A. A

B. B

C. C

D. D

Answer: A::C

View Text Solution

9. Addition of potassium nitrate to ice results in

A. increase in melting point.

B. decrease in melting point.

C. change in colour of ice.

D. Both (1) and (3)

Answer: B::C

View Text Solution

10. Identify the heterogeneous mixture among the following.

A. Brine solution

B. Duralumin

C. Gun powder

D. Liquor ammonia

Answer: C

Watch Video Solution

11. Which of the following is a pure substance?

A. Duralumin

B. Magnalium

C. Bell metal

D. Magnesium

Answer: C::D

 Watch Video Solution

12. Aluminium foil can be made from aluminium by using

A. its thermal and electrical conductivity.

B. its malleable property.

C. its sonorous property.

D. All the above

Answer: B::C

Watch Video Solution

13. Pickles are not stored in steel or aluminium containers because

A. steel has chromium which is poisonous.

B. aluminium taken up oxygen from pickles and spoils it.

C. pickles have acids which can corrode iron and aluminium making pickles poisonous.

D. None of the above

Answer: C

Watch Video Solution

14. The molecular arrangement of a substance depends upon

A. temperature

B. concentration

C. pressure

D. All of the above

Answer: C::D

Watch Video Solution

15. Silver, gold and platinum are called noble metals because _____.

A. these are costly

B. these are precious

C. these have very less reactivity

D. All the above

Answer: C

Watch Video Solution

16. Which of the following statements is true regarding solids?

A. Solids are highly compressible.

B. Solids diffuse rapidly.

C. Solids possess low density.

D. Solids possess many number of free surfaces.

Answer: C::D

Watch Video Solution

17. In which of the following subtances, intermolecular force of attraction is the maximum?

A. Iron bar

B. Water

C. Air

D. Nitrogen

Answer: A::C

Watch Video Solution

18. Which of the following has maximum compressibility?

A. Iron bar

B. Petrol

C. Chlorine

D. Bromine

Answer: C

Watch Video Solution

19. On heating, the temperature of the melting solid

A. increases.

B. decreases.

C. remains constant.

D. may increase or decrease depending upon the nature of the solid.

Answer: C

Watch Video Solution

20. Which of the following changes directly from solid to gas on heating?

A. Ammonium chloride

B. Sodium chloride

C. Potassium chloride

D. Calcium chloride

Answer: A::C

Watch Video Solution

21. The process of phase transition from solid to liquid involves the following steps. Arrange them in a proper sequence.

(a) Molecules become free to move and thus attain molecular arrangement of liquid.

(b) The energy supplied makes the molecules to vibrate more.

(c) During melting, the molecules overcome the forces of attraction between them.

(d) the molecules acquire rotatory motion,

translatory motion in addition to vibratory motion.

A. c d a b

B. b c d a

C. c d b a

D. None of these

Answer: B::C

View Text Solution

22. Under the normal conditions of temperature and pressure, the nonmetal bromine exists in _____ state.

A. solid

B. liquid

C. gaseous

D. ionized

Answer: B::C

Watch Video Solution

23. Which of the following is not polyatomic ?

A. Nitrogen

B. Sulphur

C. Ozone

D. Phosphorus

Answer: A::C

 Watch Video Solution

24. Which of the following is not a mixture?

A. Sodium chloride solution

B. Brass

C. Bronze

D. Molten sodium chloride

Answer: C::D

 Watch Video Solution

25. Which of the following elements is used for vulcanisation?

A. Phosphorus

B. Sulphur

C. Oxygen

D. Nitrogen

Answer: B::C

 Watch Video Solution

26. During the separation of acetone from water by fractional distillation, following steps are carried out. Arrange the following in a proper sequence.

(a) Water remains in the distillation flask.

(b) The acetone - water mixture is taken in a distillation flask and the flask is heated at a temperature equal to or more than the boiling point of acetone but less than that of water.

(c) As the vapour pass through the fractionating column, they get condensed and the liquid formed is collected in the receiver.

(d) When the mixture in the flask is subjected

to slow heating, acetone, being more volatile than water, gets vapourised first.

A. b d c a

B. b d a c

C. c a b d

D. c a d b

Answer: A::C

View Text Solution

27. During the separation of immiscible liquid-liquid mixture by separating funnel, following steps are followed. Arrange them in a proper sequence

(a) The nozzle tap is opened slowly and the heavier component is allowed to trickle down.

(b) The liquid - liquid mixture is poured into the separating funnel clamped vertically.

(c) The lighter component remains in the flask.

(d) Mixture is allowed to stand where clear layers of liquids are formed.

(e) The liquid with higher density settles down at the bottom of the flask.

A. b d a e c

B. a b c d e

C. b d e a c

D. d a b c e

Answer:

View Text Solution

28. A student is carrying out distillation process in the lab. Water is boiling in the distillation flask. Water that is collected in the receiver flask is refrigerated and ice cubes are formed. Ice cubes are then kept outside the refrigerator and they started melating. Arrange the following phases of water in the ascending order of their total (P.E + K.E) energy considering that the mass of water remains the same.

(a) Water collected in the receiving flask.

(b) Water boiling in the distillation flask.

(c) Steam passing through the delivery tube.

(d) Ice cubes formed in the refrigerator.

A. dcba

B. dabc

C. cdba

D. dacb

Answer: B::C

View Text Solution

29. Which among the pair is separated by using the principle of dissolution in suitable solvent?

A. SO_2 and N_2O_5, KOH as solvent

B. SO_2 and NO_2, KOH as solvent

C. SO_2 and N_2O_3, KOH as solvent

D. SO_2 and NO, KOH as solvent

Answer: C::D

View Text Solution

30. In which of the following uses of nitrogen, its characteristic property of insert nature is not exploited?

A. It is used to preserve biological specimen.

B. It dilutes the activity of oxygen present in the atmosphere.

C. It is used to preserve food materials.

D. Nitrogen is used for the synthesis of ammonia.

Answer: C::D

View Text Solution

Concept Application Level 2

1. The thermal expansion of solids is the least among solids, liquids and gases. Justify.

View Text Solution

2. In winter mornings, the exhaled air turns foggy. Explain.

Watch Video Solution

3. Explain the method by which Cl_4, H_2O and ethyl alcohol mixture can be separated.

View Text Solution

4. Conduction of heat is not possible through gases. Explain using kinetic molecular theory.

View Text Solution

5. For a certain purpose, a liquid having a liquid range from $-10^{\circ}C$ to $110^{\circ}C$ is required in large quantities. What is the suitable liquid for the above purpose and how can it be used?

View Text Solution

6. Water is sprayed in orange grooves in very cold countries during winter. Give reasons.

Watch Video Solution

7. What is the effect of temperature on the electrical conductance of metal ?

Watch Video Solution

8. Why do naphthalene and camphor sublime under normal conditions of temperature and pressure?

View Text Solution

9. Two ice cubes can be joined by pressing them together and then by releasing pressure. How do you account for this?

View Text Solution

10. Copper in copper oxide does not liberate SO_2 gas while copper in bronze cvolves SO_2 gas with conc.H_2SO_4. However, for making statues, copper is used in the form of bronze but not metallic copper or copper oxide. Explain why the same copper has such varied properties.

View Text Solution

11. Why are ornaments prepared by using an alloy of silver with copper and not by pure

silver?

Watch Video Solution

12. Perfect moulds can be made by using wrought iron but not by using molten copper. Give reasons.

View Text Solution

13. In spite of supplying heat, the temperature of the melting solid does not change. Explain

with reasons.

View Text Solution

14. During the process of soldering, the metal surfaces are cleaned using acids. What purpose does this serve and which separation technique is involved in this?

View Text Solution

15. Explain the methods by which the constituents in gunpowder can be separated.

View Text Solution

16. Redistillation of nitric acid is carried out in a ferrosilicon vessel but not in an iron vessel. Explain.

View Text Solution

17. Deepa and her family on their house warming ceremony received many bouquets which they kept at the corner of drawing room. After some time, they felt the fragrance of the flowers all over the drawing room. What could be the reason behind this ? Explain with suitalble reasson.

Watch Video Solution

18. When perfume is poured on the palm, cooling sensation is perceived. Name and explain the phenomenon associated with it.

Watch Video Solution

19. How does liquefaction of a gas depend on critical temperature?

View Text Solution

20. What is the principle involved in using brine solution to remove the ice piled on roads in cold regions?

View Text Solution

21. Explain why the snow on mountain peaks does not melt at a temperature slightly above $0^{\circ} C$.

Watch Video Solution

22. A mixture is formed by two kinds of matter, the molecules of which possess only vibratory motion. If the change in solubililty of two substances in a given solvent differs widely with the change in temperature, how can these two solids be separted from the solvent?

View Text Solution

23. Give the working principle involved in chromatography.

View Text Solution

24. When Shashi went to Vizag with his parents, he noticed that all the fishermen stores their fish inside a thermally insulated container which is filled with ice and salt. Can you give explanation for this?

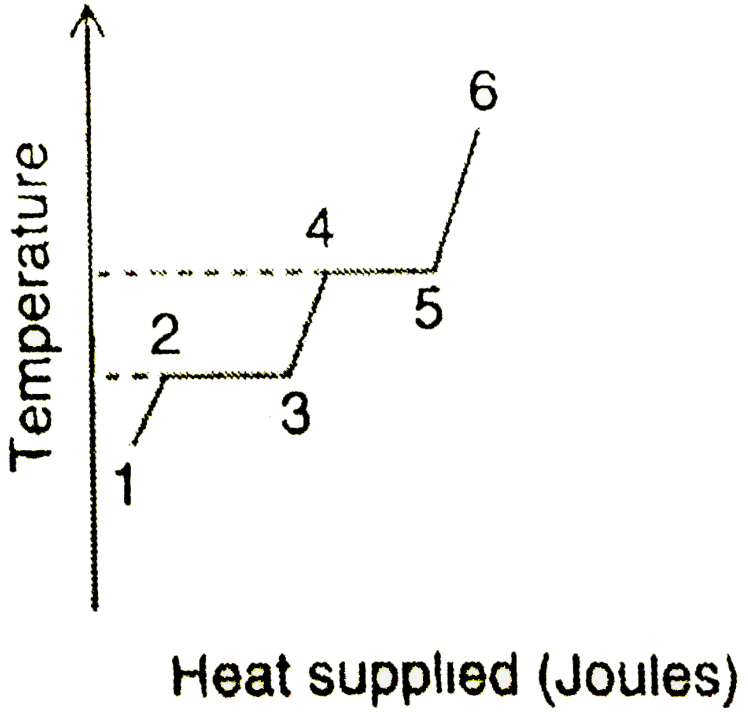
View Text Solution

25. Study the following graph and based on that answer the questions with suitable reason. The graph represents the various stages inveolved in step wise change of ice to steam.

(a) Identify the stages associated with increase in temperature. Give reason.

(b) In which stages, the temperature is

constant? Why?



View Text Solution

Concept Application Level 3

1. What is the shape of the meniscus observed when water and mercury are taken in two different capillary tubes and why ?

Watch Video Solution

2. Evaporation can take place at any temperature, but boiling takes place at a fixed temperature. Give approprate reasons.

View Text Solution

3. Vapour pressure of a liquid A is more that of B. Which of these liquids has higher crtical temperature in their gaseous state? Justify.

View Text Solution

4. Explain the changes observed when a glass of water is placed on the surface of moon.

View Text Solution

5. The surface of the electric bulb with a tungsten filament becomes greyish black after being used for a long period of time. Explain the reason.

Watch Video Solution

6. A test tube filled with water is dipped up to its neck in a boiling water bath . Does the water inside the test tube boil? Justify.

View Text Solution

7. Skating on ice is almost impossible at very low temperatures say at arround $-30^{\circ}C$. Why?

View Text Solution

8. How is milk powder made from milk? Explain the principle involved.

View Text Solution

9. Discuss the change in energy and arrangement of molecules on increasing the temperature of ice from $= 5^{\circ}C$ to $10^{\circ}C$ at 1 atm pressure.

View Text Solution

10. if a solution is formed by combination of solvent A and solid solute B, and decomposition of the solute takes place at boiling point of solvent, how can we separate these two?

View Text Solution

Example

1. Conduction of heat is not possible through gases. Explain with respect to kinetic molecular theory.

View Text Solution

2. A given mass of a gas is present in a cylinder of volume 10 L which can also be filled in a

cylinder of volume 1 L. Explain the above statement with suitable reason/s.

View Text Solution

3. Gases do not have free surfaces. Explain.

View Text Solution

4. How is boiling point related to the vapour pressure of the liquid?

View Text Solution

5. Two beakers A and B contain the same amount of alcohol and water at the same temperature, respectively. What is the change in temperature in these two liquids after some time?

Watch Video Solution

6. In winter mornings, the exhaled air turns foggy. Explain.

Watch Video Solution

7. When a liquid is placed in a closed container, the level of the liquid initially decreases but eventually becomes constant. Give reasons.

View Text Solution

8. Some antifreezing substances, like, ethylene glycol are added to the water used as coolant in vehicles. Explain the principle involved.

View Text Solution

9. Why are ornaments prepared by using an alloy of silver with copper and not by pure silver?

10. Copper is used in the form of alloys, like, brass and bronze for making statues and decorative articles, but it is used in the pure

form for making electric transinission cable. Give reasons.

View Text Solution

11. Aluminium melts and burns easily whereas alumina is used as a refractory material for making heat-resistant bricks. Explain.

View Text Solution

12. Why is mercury used in thermometers ?

Watch Video Solution

13. A mixture of iron and sulphur is taken and heated strongly. Explain what happens if a magnet is brought near it after heating.

Watch Video Solution

14. How can a gaseous mixture of CO_2, SO_2 and H_2 be separated?

View Text Solution

15. Give the working principle involved in chromatography.

View Text Solution

Test Your Concepts Very Short Answer

1. Define the following terms :Melting or Fusion

Watch Video Solution

2. Define the following terms : Evaporation

Watch Video Solution

3. Define the following terms : Condensation

Watch Video Solution

4. Define the following terms : Solidification

Watch Video Solution

5. Define the following terms : Sublimation

Watch Video Solution

6. Define the following terms : Melting point

Watch Video Solution

7. Define the following terms : Boiling point

Watch Video Solution

8. Define the following terms : Liquefaction

Watch Video Solution

9. Define the following terms : Freezing point

Watch Video Solution

10. Define critical temperature.

Watch Video Solution

11. Define the following terms : Matter

Watch Video Solution

12. Define the following terms : Pure substance

Watch Video Solution

13. Define the following terms : Mixture

Watch Video Solution

14. Define the following terms : Element

Watch Video Solution

15. Define the following terms : Compound

Watch Video Solution

16. Define the following terms : Metal

Watch Video Solution

17. Define the following terms : Non-Metal

Watch Video Solution

18. Define the following terms : Metalloids

Watch Video Solution

19. Define the following terms : Alloy

Watch Video Solution

20. Define the following terms : Noble metals

21. What is corrosion ? How does iron get corroded?

22. Blue coloured $CuSO_4$ solution is taken in a beaker. Is the blue solution an element

compound or mixture? Is it homogeneous or heterogeneous?

Watch Video Solution

23. Stains of rust on clothes can be removed by :

Watch Video Solution

24. How are elements classified based on atomicity? Explain with example.

Watch Video Solution

25. The process due to which some solid substance directly vaporise on heating and solidify on cooling, without becoming a liquid is called _____ .

Watch Video Solution

26. Give two examples for the following types of a mixture: Solid: solid homogeneous

Watch Video Solution

27. Give two examples for the following types of a mixture: Solid: liquid homogeneous

Watch Video Solution

28. Give two examples for the following types of a mixture: Liquid: gas homogeneous

Watch Video Solution

29. Give two examples for the following types of a mixture: Liquid: liquid homogeneous

30. Give two examples for the following types of a mixture: Gas: gas homogeneous

31. Give two examples for the following types of a mixture: Solid: solid heterogeneous

Watch Video Solution

32. Give two examples for the following types of a mixture: Solid: liquid heterogeneous

Watch Video Solution

33. Give two examples for the following types of a mixture: Liquid: liquid heterogeneous

Watch Video Solution

34. Write the products obtained in the following reactions: $Na_2O + H_2O \rightarrow$

Watch Video Solution

35. Write the products obtained in the following reactions: $CO_2 + H_2O \rightarrow$

Watch Video Solution

36. Write the products obtained in the following reactions: $CO + H_2O \rightarrow$

Watch Video Solution

37. Write the products obtained in the following reactions: $SO_2 + H_2O \rightarrow$

Watch Video Solution

38. What is the principle involved in the following methods of separation of mixtures?

Fractional crystallization

Watch Video Solution

39. What is the principle involved in the following methods of separation of mixtures?

Magnetic separation

Watch Video Solution

40. What is the principle involved in the following methods of separation of mixtures?

Preferential liquefaction

Watch Video Solution

41. What is the principle involved in the following methods of separation of mixtures?

Fractional evaporation

Watch Video Solution

42. Mention the allotropic forms of the following metalloids: Arsenic

Watch Video Solution

43. Mention the allotropic forms of the following metalloids: Antimony

Watch Video Solution

44. Mention the allotropic forms of the following metalloids: Selenium

Watch Video Solution

45. What is supernatant liquid?

Watch Video Solution

46. What is the role of platinum in catalytic converter ?

Watch Video Solution

47. Which property of German silver makes it useful for making imitation jewellery?

Watch Video Solution

48. The kinetic energy of the molecules is _____ in solids than in liquids.

Watch Video Solution

49. Certain gases dissolve in water by the process of _____.

Watch Video Solution

50. Name the phenomena causing the following events : Formation of dew

Watch Video Solution

51. Name the phenomena causing the following events : Disappearance of naphthalene balls

Watch Video Solution

52. Name the phenomena causing the following events : Drying of wet clothes

Watch Video Solution

53. Name the phenomena causing the following events : Formation of snow

Watch Video Solution

54. Name the phenomena causing the following events : Formation of cloud

Watch Video Solution

55. What is meant by the atomicity of an element?

Watch Video Solution

56. What type of ions do the following form?

(i) a metal

(ii) a non-metal

Watch Video Solution

57. Give two examples of substances which can be separated by the following methods.

Sublimation

Watch Video Solution

58. Give two examples of substances which can be separated by the following methods.

Magnetic separation

Watch Video Solution

59. Give two examples of substances which can be separated by the following methods.

Filtration

Watch Video Solution

60. The intermolecular forces of attraction between like molecules are called _____ and different molecules are called _____.

Watch Video Solution

61. The molecules of a liquid possess _____ type of motions.

Watch Video Solution

62. Establish antimony as a metalloid on the basis of its metallic property.

Watch Video Solution

63. Under the normal conditions of temperature and pressure, the metal mercury

remains in a _____ state.

Watch Video Solution

64. Thermal expansion in solids is ____ than liquids and gases.

Watch Video Solution

65. The temperature at which a liquid changes into a gas on heating at normal atmospheric pressure is called the _____ of that liquid.

Watch Video Solution

Test Your Concepts Short Answer

1. Differentiate between homogeneous and heterogeneous mixtures with examples.

Watch Video Solution

2. Differentiate the following: Evaporation and Boiling

 Watch Video Solution

3. Differentiate the following: Gas and Vapour

 Watch Video Solution

4. Differentiate the following: Pure Substances and Mixture

 Watch Video Solution

5. State the uses of the following non-metals:

Oxygen

Watch Video Solution

6. State the uses of the following non-metals:

Chlorine

Watch Video Solution

7. State the uses of the following non-metals:

Sulphur

Watch Video Solution

8. Explain the procedure for separation of sand water into sand and water.

Watch Video Solution

9. Give examples of noble metals. Why are thy called noble metals?

 Watch Video Solution

10. Give the characteristics of _____.

(a) elements (b) compounds. (c) mixtures

 Watch Video Solution

11. Give the uses of the following metals: Fe

Watch Video Solution

12. Give the uses of the following metals: Pb

Watch Video Solution

13. Give the uses of the following metals: Cu

Watch Video Solution

14. Give the uses of the following metals: Zn

Watch Video Solution

15. Explain the separation of charocoal from sulphur.

Watch Video Solution

16. Explain how the following types of a mixture are separated: $NH_4Cl - NaCl$ mixture

Watch Video Solution

17. Explain how the following types of a mixture are separated: Chalk-water mixture

Watch Video Solution

18. Name the metalloids and state the reasons why they are categorized as metalloids.

Watch Video Solution

19. Write the main postulates of the kinetic molecular theory ?

Watch Video Solution

20. Compare metals and non-metals based on their physical properties.

Watch Video Solution

Concept Application Level 1 True Or False

1. Gas molecules have higher intermolecular forces of attraction due to larger intermolecular spaces.

Watch Video Solution

2. Non-metals usally form acidic oxides.

Watch Video Solution

3. Boiling occurs throughout the liquid.

View Text Solution

4. German silver is an alloy of silver and copper.

Watch Video Solution

5. Distillation is the method used for separation of petrol from water.

Watch Video Solution

6. Glucose-water mixture can be separated by the method of evaporation.

Watch Video Solution

7. Metals form basic oxides or amphoteric oxides.

Watch Video Solution

Concept Application Level 1 Fill In The Blanks

1. Decrease of pressure _____ the boiling point of a liquid.

View Text Solution

2. Rate of evaporation is increased by increasing _____ and _____.

Watch Video Solution

3. _____ acts as a catalyst during the hydrogenation of vegetable oils.

Watch Video Solution

4. Liquid _____ is used for preserving biological specimen

Watch Video Solution

5. N_2 is _____ in KOH solution while CO_2 is _____.

Watch Video Solution

6. Tincture of iodine is a mixture of _____and _____.

Watch Video Solution

7. Gases cannot be liquefied above a certain temperature called _____.

Watch Video Solution

Concept Application Level 1 Matching

1. Match the entries in Column A with the appropriate ones in Column B.

Column A		Column B
A. Mixture of sand and sawdust	( )	a. Separating funnel
B. Mixture of nitre and common salt	( )	b. Heating
C. Mixture of sulphur and CS_2	( )	c. Fractional distillation
D. Mixture of oil and water	( )	d. Fractional crystallization
E. Mixture of alcohol and water	( )	e. Gravity separation
F. Mixture of CO_2 and water	( )	f. Solvent—KOH
G. Mixture of SO_2 and O_2	( )	g. Evaporation

View Text Solution

Concept Application Level 1 Select The Correct Alternative

1. Brass is not suitable for type making because

A. brass expands on solidification

B. brass contracts on solidification

C. brass has less tensile strength

D. brass has less ductility

Answer: B

View Text Solution

2. Which metal is used to galvanize iron sheets?

A. copper

B. aluminium

C. tin

D. zinc

Answer: D

Watch Video Solution

3. Iron possesses good casting properties when compared with copper because

A. iron contracts on solidification

B. iron expands on solidification

C. copper expands on solidification

D. copper neither contracts nor expands on solidification

Answer: B

View Text Solution

4. With the increase in pressure, the boiling point of the liquid _____

A. decreases

B. increases

C. does not change

D. depends on the nature of liquid

Answer: B

Watch Video Solution

5. _____ is used for making photographic films.

A. $AgNO_3$

B. KNO_2

C. AgO

D. AgCl

Answer: D

Watch Video Solution

6. Silver tarnishes due to the formation of _____

A. oxide layer

B. sulphide layer

C. nitride layer

D. hydride layer

Answer: B

Watch Video Solution

7. Which among the pairs are separated by using the principle of dissolution in a suitable solvent?

A. SO_2 and N_2O_5 , KOH as solvent

B. SO_2 and NO_2 , KOH as solvent

C. SO_2 and N_2O_3 , KOH as solvent

D. SO_2 and NO , KOH as solvent

Answer: C

View Text Solution

8. A, B, C and D are four gases. If the order of their critical temperature is as D $<$ B $<$ C $<$ A, then which of the following gases has the highest boiling point?

A. A

B. B

C. C

D. D

Answer: A::B::C::D

View Text Solution

9. Addition of potassium nitrate to ice results in

A. increase in melting point

B. decrease in melting point

C. change in colour of ice

D. both (a) and (c)

Answer: B

View Text Solution

10. Identify the heterogeneous mixture among the following:

A. brine solution

B. duralumin

C. gunpowder

D. liquor ammonia

Answer: B

 Watch Video Solution

11. Which of the following is a pure substance?

A. duralumin

B. magnalium

C. bell metal

D. magnesium

Answer: C

 Watch Video Solution

12. Aluminium foil can be made from aluminium by using

A. its thermal and electrical conductivities

B. its malleable property

C. its sonorous property

D. all the above

Answer: B

Watch Video Solution

13. Pickles are not stored in steel or aluminium containers because

A. steel has chromium which is poisonous

B. aluminium takes up oxygen from pickles and spoils it

C. pickles have acids which can corrode iron and aluminium making pickles poisonous

D. none of the above

Answer: B

Watch Video Solution

14. The molecular arrangement of a substance depends upon

A. tenperature

B. concentration

C. pressure

D. all of these

Answer: C

View Text Solution

15. Silver, gold and platinum are called noble metals because _____.

A. these are costly

B. these are precious

C. these have very less reactivity

D. all of these

Answer: B

Watch Video Solution

16. Which of the following statements is true regarding solids?

A. Solids are highly compressible.

B. Solids diffuse rapidly.

C. Solids possess low density.

D. Solids possess a number of free surfaces.

Answer:

Watch Video Solution

17. In which of the following subtances, intermolecular force of attraction is the maximum?

A. iron bar

B. water

C. air

D. nitrogen

Answer:

Watch Video Solution

18. Which of the following has maximum compressibility?

A. iron bar

B. petrol

C. chlorine

D. bromine

Answer:

Watch Video Solution

19. On heating, the temperature of the melting solid

A. increases

B. decreases

C. remains constant

D. may increase or decrease depending upon the nature of the solid

Answer:

Watch Video Solution

20. Which of the following changes directly from solid to gas on heating?

A. ammonium chloride

B. sodium chloride

C. potassium chloride

D. calcium chloride

Answer:

 Watch Video Solution

21. The process of phase transition from solid to liquid involves the following steps. Arrange them in a proper sequence.

(1) Molecules become free to move, and thus, attain molecular arrangement of liquid.

(2) The energy supplied makes the molecules to vibrate more

(3) During melting, the molecules overcome the forces of attraction between them.

(4) The molecules acquire rotatory motion, translatory motion in addition to vibratory motion.

A. 3 4 1 2

B. 2 3 4 1

C. 3 4 2 1

D. none of these

Answer:

View Text Solution

22. Under the normal conditions of temperature and pressure, the nonmetal bromine exists in _____ state.

A. solid

B. liquid

C. gaseous

D. ionised

Answer:

Watch Video Solution

23. Which of the following is not polyatomic ?

A. nitrogen

B. sulphur

C. ozone

D. phosphorus

Answer:

Watch Video Solution

24. Which of the following is not a mixture?

A. Sodium chloride solution

B. Brass

C. Bronze

D. Molten sodium chloride

Answer:

Watch Video Solution

25. Which of the following elements is used for vulcanisation?

A. phosphorus

B. sulphur

C. oxygen

D. nitrogen

Answer:

Watch Video Solution

26. During the separation of acetone from water by fractional distillation, the following steps are carried out. Arrange the following in a proper sequence.

(1) Water remains in the distillation flask.

(2) The acetone-water mixture is taken in a distillation flask and the flask is heated at a temperature equal to or more than the boiling point of acetone but less than that of water.

(3) As the vapours pass through the fractionating column, they get condensed and the liquid formed is collected in the receiver.

(4) When the mixture in the flask is subjected to slow heating, acetone, being more volatile than water, gets vaporised first.

A. 2 4 3 1

B. 2 4 1 3

C. 3 1 2 4

D. 3 1 4 2

Answer:

View Text Solution

27. During the separation of immiscible liquid-liquid mixture by a separating funnel, the following steps are followed. Arrange them in a proper sequence.

(1) The nozzle tap is opened slowly and the

heavier component is allowed to trickle down.

(2) The liquid-liquid mixture is poured into the separating funnel clamped vertically.

(3) The lighter component remains in the flask.

(4) The mixture is allowed to stand where clear layers of liquids are formed.

(5) The liquid with higher density settles down at the bottom of the flask.

A. 2 4 1 5 3

B. 1 2 3 4 5

C. 2 4 5 1 3

D. 4 1 2 3 5

Answer:

View Text Solution

28. A student is carrying out distillation process in a lab. Water is boiling in the distillation flask. Water that is collected in the receiver flask is refrigerated and ice cubes are formed. Ice cubes are then kept outside the refrigerator and they started melting. Arrange

the following phases of water in the ascending order of their total (PE + KE) energy considering that the mass of water remains the same.

(1) Water collected in the receiving flask.

(2) Water boiling in the distillation flask.

(3) Steam passing through the delivery tube.

(4) Ice cubes formed in the refrigerator.

A. 4 3 2 1

B. 4 1 2 3

C. 3 4 2 1

D. 4 1 3 2

Answer:

View Text Solution

29. Which among the pairs is separated by using the principle of dissolution in a suitable solvent?

A. SO_2 and N_2O_5 , KOH as solvent

B. SO_2 and NO_2 , KOH as solvent

C. SO_2 and N_2O_3 , KOH as solvent

D. SO_2 and NO , KOH as solvent

Answer:

View Text Solution

30. In which of the following uses of nitrogen, its characteristic property of inert nature is not exploited?

A. It is used to preserve biological specimen.

B. It dilutes the activity of oxygen present in the atmosphere.

C. It is used to preserve food materials.

D. Nitrogen is used for the synthesis of ammonia.

Answer:

Watch Video Solution

Concept Application Level 2

1. The thermal expansion of solids is the least among solids, liquids and gases. Justify.

View Text Solution

2. Explain the method by which CCl_4, H_2O and ethyl alcohol mixture can be separated.

View Text Solution

3. For a certain purpose, a liquid having a liquid range from $210^{\circ} C$ to $110^{\circ} C$ is required in large quantities. What is the suitable liquid for the above purpose and how can it be used?

View Text Solution

4. Water is sprayed in orange grooves in very cold countries during winter. Give reasons.

View Text Solution

5. What is the effect of temperature on the electrical conductance of metal ?

Watch Video Solution

6. Why do naphthalene and camphor sublime under normal conditions of temperature and pressure?

View Text Solution

7. Two ice cubes can be joined by pressing them together and then by releasing pressure. How do you account for this?

View Text Solution

8. Copper in copper oxide does not liberate SO_2 gas while copper in bronze evolves SO_2 gas with conc. H_2SO_4. However, for making statues, copper is used in the form of bronze but not metallic copper or copper oxide.

Explain why the same copper has such varied properties

View Text Solution

9. Why are ornaments prepared by using an alloy of silver with copper and not by pure silver?

Watch Video Solution

10. Perfect moulds can be made by using wrought iron but not by using molten copper. Give reasons.

View Text Solution

11. In spite of supplying heat, the temperature of the melting solid does not change. Explain with reasons.

View Text Solution

12. During the process of soldering, the metal surfaces are cleaned using acids. What purpose does this serve and which separation technique is involved in this?

View Text Solution

13. Explain the methods by which the constituents in gunpowder can be separated.

View Text Solution

14. Redistillation of nitric acid is carried out in a ferrosilicon vessel but not in an iron vessel. Explain.

View Text Solution

15. Deepa and her family on their house warming ceremony received many bouquets which they kept at the corner of drawing room. After some time, they felt the fragrance of the flowers all over the drawing room. What

could be the reason behind this ? Explain with suitalble reasson.

Watch Video Solution

16. When perfume is poured on the palm, cooling sensation is perceived. Name and explain the phenomenon associated with it.

Watch Video Solution

17. How does liquefaction of a gas depend on critical temperature?

View Text Solution

18. What is the principle involved in using brine solution to remove the ice piled on roads in cold regions?

Watch Video Solution

19. Explain why the snow on the mountain peaks does not melt at a temperature slightly above $0^{\circ} C$.

View Text Solution

20. A mixture is formed by two kinds of matter, the molecules of which possess only vibratory motion. If the change in solubility of two substances in a given solvent differs widely with the change in temperature, how can

these two solids be separated from the solvent?

View Text Solution

21. Give the working principle involved in chromatography.

View Text Solution

22. When Shashi went to Vizag with his parents, he noticed that all the fishermen

store their fish inside a thermally insulated container which is filled with ice and salt. Can you give an explanation for this?

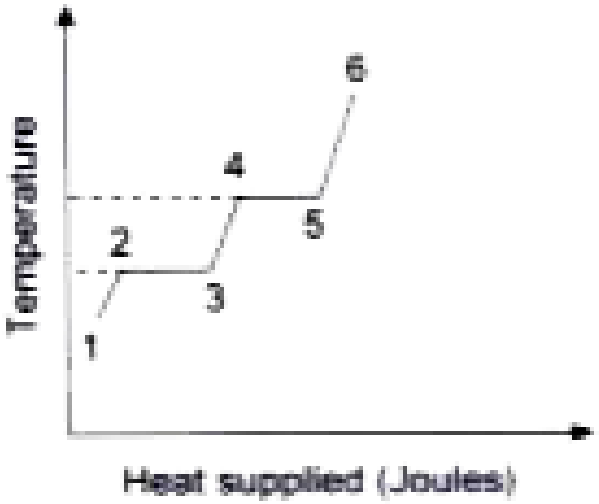
View Text Solution

23. Study the following graph and based on that answer the questions with a suitable reason. The graph represents the various stages involved in step-wise change of ice to steam.

(a) Identify the stages associated with increase

in temperature. Give a reason.

(b) In which stages, the temperature is constant? Why so?



View Text Solution

Concept Application Level 3

1. What is the shape of the meniscus observed when water and mercury are taken in two different capillary tubes and why?

View Text Solution

2. Evaporation can take place at any temperature, but boiling takes place at a fixed temperature. Give appropriate reasons.

View Text Solution

3. Vapour pressure of a liquid A is more that of B. Which of these liquids has higher critical temperature in their gaseous state? Justify.

View Text Solution

4. Explain the changes observed when a glass of water is placed on the surface of moon.

View Text Solution

5. The surface of the electric bulb with a tungsten filament becomes greyish black after being used for a long period of time. Explain the reason.

Watch Video Solution

6. A test tube filled with water is dipped up to its neck in a boiling water bath. Does the water inside the test tube boil? Justify

View Text Solution

7. Skating on ice is almost impossible at very low temperatures say at around $-30^{\circ}C$. Why?

View Text Solution

8. How is milk powder made from milk? Explain the principle involved.

View Text Solution

9. Discuss the change in energy and arrangement of molecules on increasing the temperature of ice from $-5^{\circ}C$ to $10^{\circ}C$ at 1 atm pressure.

View Text Solution

10. If a solution is formed by a combination of solvent A and solid solute B, and decomposition of the solute takes place at the

boiling point of solvent, how can we separate these two?

View Text Solution