# SECTION - I

## Straight Objective Type

*This section contains multiple choice questions. Each question has 4 choices (A), (B), (C), (D), out of which ONLY ONE is correct. Choose the correct option.*

1. *Cations migrate to _____ during electrolysis*
   *(a) migrate to both cathode and anode*
   *(b) cathode*
   *(c) do not migrate to either cathode or anode*
   *(d) chalk anode*
2. *Liquids have _____ shape and _____volume.*
   *(a) definite, definite* *(b) definite, indefinite*
   *(c)gases, solids* *(d) liquids, solids*
3. *The inter particle distances are maximum in ____ and minimum is _____*
   *(a) solids, liquids* *(b) solids, gases*
   *(c) gases, solids* *(d) liquids, solids*
4. *The inter particles forces of attraction is maximum is _____ and minimum in _____*
   *(a) solids, liquids* *(b) solids, gases*
   *(c) gases, solids* *(d) liquids, solids*
5. *Conversion of solid to gas is called*
   *(a) vaporisation* *(b) condensation*
   *(c) liquefaction* *(d) sublimation*
6. *The conversion that takes place at room temperature is*
   *(a) boiling* *(b) evaporation* *(c) melting* *(d) freezing*
7. *Number of protons in parent atom is _____ the anion.*
   *(a) greater than* *(b) smaller than*
   *(c) equal to* *(d) can be greater or smaller*
8. *Number of electrons in parent is _____ the cation.*
   *(a) greater than* *(b) smaller than*
   *(c) equal to* *(d) can be greater or smaller than*
9. *The formula of hydroxide radical is:*

(a) $H^+$ (b) $H_3O^+$ (c) $OH^-$ (d) $H^-$

10. *Which is not a pure substance in the four options given?*
    *(a) alloy* *(b) sugar*
    *(c) distilled water* *(d) copper wire*
11. *The characteristic property of matter is/are*
    *(a) it has mass*
    *(b) it has volume*
    *(c) it can be perceived by our senses*
    *(d) all three (a, b & c)*
12. *The increasing order of inter particle attractions of sugar, oxygen, gold, water is*
    *(a) sugar < oxygen < gold < water*
    *(b) sugar > oxygen > gold > water*
    *(c) oxygen < water < sugar < gold*
    *(d) oxygen > water > sugar > gold*
13. *The pressure exerted by a gas is due to*
    *(a) inter particle collisions*
    *(b) collisions with the walls of the container*
    *(c) gravity*
    *(d) atmospheric pressure*
14. *If a perfume bottle is opened in one corner of a room, the smell can be felt after sometime in the opposite corner. This shows that*
    *(a) particles of matter are constantly moving*
    *(b) the perfume is stronger*
    *(c) the room has a fan which circulates the perfume*
    *(d) none of these*
15. *The matter that has stronger inter particles forces between an iron piece and a chalk piece is:*
    *(a) iron* *(b) chalk piece*
    *(c) both* *(d) neither*
16. *The quantity of matter in 1 kg of cotton is __ that present in 1 kg of sugar.*
    *(a) smaller than* *(b) greater than*
    *(c) equal to* *(d) can not say*

17. *The volume of matter in 1 kg of cotton is _____ that present in 1 kg of sugar.*

*(a) smaller than* *(b) greater than*

*(c) equal to* *(d) can not say*

18. *The type of motion that is present in solids is:*

*(a) random* *(b) linear (in a straight line)*

*(c) vibratory* *(d) circular*

19. *The type of motion that is present in liquids is:*

*(a) random* *(b) linear (in a straight line)*

*(c) vibratory* *(d) circular*

20. *The type of motion that is present is gases is:*

*(a) random* *(b) linear (in a straight line)*

*(c) vibratory* *(d) circular*

21. *The physical state of matter whose volume can change significantly by changing pressure only is:*

*(a) solid* *(b) gas*

*(c) liquid* *(d) all three*

22. *The physical state of matter whose volume can change significantly by changing temperature only is:*

*(a) solid* *(b) gas* *(c) liquid* *(d) all three*

23. *The density of matter will be highest in which state?*

*(a) solid* *(b) liquid* *(c) gas* *(d) can not say*

24. *The kinetic energy of the particles of a given substance will be least in*

*(a) solid state* *(b) liquid state*

*(c) gaseous state* *(d) can not say*

25. *The state of matter where matter is condensed is:*

*(i) solid* *(ii) liquid* *(iii) gaseous state*

*(a) (i) and (iii)* *(b) (ii) and (iii)*

*(c) (i) and (ii)* *(d) (i), (ii) and (iii)*

## SECTION - II

### Assertion - Reason Questions

*This section contains certain number of questions. Each question contains STATEMENT-1 (Assertion) and STATEMENT - 2 (Reason). Each question has 4 choices (a), (b), (c) and (d) out of which ONLY ONE is correct. Choose the correct option.*

26. *STATEMENT-1: Cations carry positive charge.*

***because***

*STATEMENT - 2: The number of protons is more than the number of electrons in the ion.*

*(a) Statement - 1 is True, Statement - 2 is True; Statement - 2 is a correct explanation for statement - 0031*

*(b) Statement - 1 is True, Statement - 2 is True; Statement - 2 is NOT a correct explanation for Statement - 1*

*(c) Statement - 1 is True, Statement - 2 is False*

*(d) Statement - 1 is False, Statement - 2 is True*

27. *STATEMENT-1: When an atom gains electrons it becomes negatively charged.*

***because***

*STATEMENT - 2: The atom has protons.*

*(a) Statement - 1 is True, Statement - 2 is True; Statement - 2 is a correct explanation for statement - 1*

*(b) Statement - 1 is True, Statement - 2 is True; Statement - 2 is NOT a correct explanation for Statement - 1*

*(c) Statement - 1 is True, Statement - 2 is False*

*(d) Statement - 1 is False, Statement - 2 is True*

28. *STATEMENT-1: Plasma state existe everywhere.*

***because***

*STATEMENT - 2: Plasma state of matter is a fused ionic state.*

*(a) Statement - 1 is True, Statement - 2 is True; Statement - 2 is a correct explanation for statement - 1*

*(b) Statement - 1 is True, Statement - 2 is True; Statement - 2 is NOT a correct explanation for Statement - 1*

*(c) Statement - 1 is True, Statement - 2 is False*

*(d) Statement - 1 is False, Statement - 2 is True*

29. *STATEMENT-1: Molecules can exist independently.*

***because***

*STATEMENT - 2: Molecules are made up of atoms.*

*(a) Statement - 1 is True, Statement - 2 is True; Statement - 2 is a correct explanation for statement - 1*

*(b) Statement - 1 is True, Statement - 2 is True; Statement - 2 is NOT a correct explanation for Statement - 1*

*(c) Statement - 1 is True, Statement - 2 is False*

*(d) Statement - 1 is False, Statement - 2 is True*

30. *STATEMENT-1: Amongnst iron, sand and sponge, the matter that can be compressed most is sponge.*

***because***

*STATEMENT - 2: Sopnge has more inter particle spaces.*

*(a) Statement - 1 is True, Statement - 2 is True; Statement - 2 is a correct explanation for statement - 1*

*(b) Statement - 1 is True, Statement - 2 is True; Statement - 2 is NOT a correct explanation for Statement - 1*

*(c) Statement - 1 is True, Statement - 2 is False*

*(d) Statement - 1 is False, Statement - 2 is True*

31. *STATEMENT-1: Table sugar takes the shape of the container in which it is kept.*

***because***

*STATEMENT - 2: Sugar crystal is a solid.*

*(a) Statement - 1 is True, Statement - 2 is True; Statement - 2 is a correct explanation for statement - 1*

*(b) Statement - 1 is True, Statement - 2 is True; Statement - 2 is NOT a correct explanation for Statement - 1*

*(c) Statement - 1 is True, Statement - 2 is False*

*(d) Statement - 1 is False, Statement - 2 is True*

32. *STATEMENT-1: The Boiling Point of ethanol is* $35^0 C$ *and that of water is* $100^0 C$

***because***

*STATEMENT - 2: The inter particles forces of attraction are larger in water when compared to ethanol.*

*(a) Statement - 1 is True, Statement - 2 is True; Statement - 2 is a correct explanation for statement - 1*

*(b) Statement - 1 is True, Statement - 2 is True; Statement - 2 is NOT a correct explanation for Statement - 1*

*(c) Statement - 1 is True, Statement - 2 is False*

*(d) Statement - 1 is False, Statement - 2 is True*

33. *STATEMENT-1: Water takes the shape of the container in which it is kept.*

***because***

*STATEMENT - 2: Water is a liquid.*

*(a) Statement - 1 is True, Statement - 2 is True; Statement - 2 is a correct explanation for statement - 1*

*(b) Statement - 1 is True, Statement - 2 is True; Statement - 2 is NOT a correct explanation for Statement - 1*

*(c) Statement - 1 is True, Statement - 2 is False*

*(d) Statement - 1 is False, Statement - 2 is True*

34. *STATEMENT-1: When matters in different physical states are mixed, the movement is the greatest if they are in liquid state.*

***because***

*STATEMENT - 2: The inter particle movement is maximum in the gaseous state when compared to the liquid state when compared to the solid state.*

*(a) Statement - 1 is True, Statement - 2 is True; Statement - 2 is a correct explanation for statement - 1*

*(b) Statement - 1 is True, Statement - 2 is True; Statement - 2 is NOT a correct explanation for Statement - 1*

*(c) Statement - 1 is True, Statement - 2 is False*

*(d) Statement - 1 is False, Statement - 2 is True*

35. *STATEMENT-1: A substance that exixts as a liquid, must be at a temperature that is above its freezing point.*

***because***

*STATEMENT - 2: Below the freezing point of a substance it will solidify.*

*(a) Statement - 1 is True, Statement - 2 is True; Statement - 2 is a correct explanation for statement - 1*

*(b) Statement - 1 is True, Statement - 2 is True; Statement - 2 is NOT a correct explanation for Statement - 1*

*(c) Statement - 1 is True, Statement - 2 is False*

*(d) Statement - 1 is False, Statement - 2 is True*

36. *STATEMENT-1: The direct conversion of solid state to gaseous state is called 1 sublimation.*

***because***

*STATEMENT - 2: The direct conversion of gaseous state into solid state is opposte of sublimation.*

*(a) Statement - 1 is True, Statement - 2 is True; Statement - 2 is a correct explanation for statement - 1*

*(b) Statement - 1 is True, Statement - 2 is True; Statement - 2 is NOT a correct explanation for Statement - 1*

*(c) Statement - 1 is True, Statement - 2 is False*

*(d) Statement - 1 is False, Statement - 2 is True*

37. *STATEMENT-1The change in volume when matter change from gaseous state to liquid state, is very high when compared to its change from liquid state to solid state.*

***because***

*STATEMENT - 2: In the liquid state the particles of matter are already quite close together when compared to a gas.*

*(a) Statement - 1 is True, Statement - 2 is True; Statement - 2 is a correct explanation for statement - 1*

*(b) Statement - 1 is True, Statement - 2 is True; Statement - 2 is NOT a correct explanation for Statement - 1*

*(c) Statement - 1 is True, Statement - 2 is False*

*(d) Statement - 1 is False, Statement - 2 is True*

38. *STATEMENT-1: One kg of water at* $0^0C$ *has more energy than 1 kg of ice at* $0^0C$.

***because***

*STATEMENT - 2: Water at* $0^0C$ *becomes ice at* $0^0C$ *by giving up Latent Heat of Solidification.*

*(a) Statement - 1 is True, Statement - 2 is True; Statement - 2 is a correct explanation for statement - 1*

*(b) Statement - 1 is True, Statement - 2 is True; Statement - 2 is NOT a correct explanation for Statement - 1*

*(c) Statement - 1 is True, Statement - 2 is False*

*(d) Statement - 1 is False, Statement - 2 is True*

39. *STATEMENT-1: One kg of water at* $100^0C$ *has less energy than 1 kg of steam at* $100^0C$.

***because***

*STATEMENT - 2: Water at* $100^0C$ *becomes steam at* $100^0C$ *by giving up Latent Heat of Vaporisation.*

*(a) Statement - 1 is True, Statement - 2 is True; Statement - 2 is a correct explanation for statement - 1*

*(b) Statement - 1 is True, Statement - 2 is True; Statement - 2 is NOT a correct explanation for Statement - 1*

*(c) Statement - 1 is True, Statement - 2 is False*

*(d) Statement - 1 is False, Statement - 2 is True*

37. *STATEMENT-1: If the inter particles forces of attraction are small then the boiling point will be high.*

***because***

*STATEMENT - 2: Higher the inter particles forces of attraction, higher the boiling point.*

*(a) Statement - 1 is True, Statement - 2 is True; Statement - 2 is a correct explanation for statement - 1*

*(b) Statement - 1 is True, Statement - 2 is True; Statement - 2 is NOT a correct explanation for Statement - 1*

*(c) Statement - 1 is True, Statement - 2 is False*

*(d) Statement - 1 is False, Statement - 2 is True*

## SECTION - III

### Linked Comprehension Type

*This section contains paragraphs. Based upon each paragraph multiple choice questions have to be answered. Each question has 4 choices (a), (b), (c) and (d), out of which ONLY ONE is correct. Choose the correct option.*

**Paragraph for questions 41 to 44**

*An atom has three fundamental particles. Namely, electrons, protons and neutrons. The protons and neutrons are present at the centre of the atom of the atom in a small region called nucleus. They are called nucleons. The electrons revolve around the nucleus. The protons carry positive charge, electrons carry negative charge and neutrons are neutral. Atomic Number (denoted by Z) of an element is the number of protons or positive charge presents in the nucleus of the atom. For carbon Z = 6. This means that carbon atom has 6 protons in its nucleus and 6 electrons revolving around it. Mass Number (denoted by A) of an element is the sum of the number of proton and neutrons in the nucleus of an atom. Mass Number of Carbon atom is 12. This means that the sum of the number of protons and neutrons in the nucleus of Carbon atom is 12. Since, Carbon atom has 6 protons (Atomic Number 6) the number of neutrons is 12-6 =6. The Atomic Number and Mass Number of Hydrogen is 1, as it does not have any neutrons.*

41. *The number of fundamental particles present in nucleus is called_____*
    *(a) atomic number* *(b) mass number*
    *(c) atomic weight* *(d) charge*

42. *The difference (A-Z) gives the _____ in the atom.*
    *(a) number of electrons* *(b)number of protons*
    *(c) number of neutrons* *(d) number of electrons and protons.*

43. *The particles present in the nucleus are called*
    *(a) neutrons* *(b) protons* *(c) electrons* *(d) nucleous*

44. *A neutral atom has a nucleus with a nuclear charge 13 times that of H nuvcleus. How many electrons are present in the atom?*
    *(a) 13* *(b) 1* *(c) 0* *(d) 2*

**Paragraph for question 45 to 47**

*When two pure substances are mixed together they form a mixture. Mixtures can be of several types. For example a solid can be mixed with another solid or liquid a liquid can be in a mixture with another liquid or gas and a gas can be mixed with another gas. The constituents can be used to separated by physical methods. There are many physical methods that can be used to separated the constitutes or parts in a mixture. The method will depend on physical properties of the constituents. A solid dissolved in a liquid can be separated by Distillation. The mixture is heated to the boiling point of the liquid when the liquid boils off leaving the solid behind. When two or more liquids are mixed they can be separated by Fractional Distillation. The mixture is slowly and gradually heated when the liquid with the lower boiling point boils off first and can be collected by cooling. Then the temperature is raised further till the second liquid boils off. It is collected in a separate container. Separation of mixtures can also be done by chemical methods. A difference in chemical property is used to separate a constituent by reacting it with appropriate reactions. The constituent is later recovered from the product formed.*

45. *To separate a mixture of kerosene and petrol the method that can be used is*

    *(a) distillation* *(b) fractional distillation*

    *(c) boiling* *(d) filtration*

46. *Separation of a mixture into its constituents depends on*

    *i) physical properties* *ii) chemical properties* *iii) physical state*

    *(a) i) and ii)* *(b) ii) and iii)* *(c) i) and iii)* *(d) i), ii) and iii)*

47. *When a mixture is boiled for separating into its constituents, the constituent that is separated last has*

    *(a) lowrer boiling point*

    *(b) higher boiling point*

    *(c) can have lower or higher boiling point*

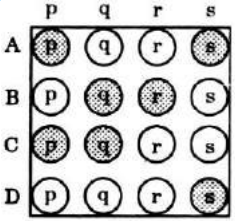
    *(d) none*

## SECTION - IV

### Matrix - Match Type

*This section contains Matrix-Match type questions. Each question contains statements given in two columns which have to be matched. Statements (a, b, c, d) in Column I have to be matched with statements (p, q, r, s) in Column II. The answers to these questions have to be appropriately bubbled as illustrated in the following example.*

*If the correct matches are a-p, a-s, b-q, b-r, c-p, c-q and d-s, then the correctly bubbled 4 x 4 matrix should be as follows:*




**48.** ***Match the property of atoms in Column I with the items in Column II***

| ***Column I*** | ***Column II*** |
|---|---|
| *(a) Number of electrons* | *(p) Hydrogen* |
| *(b) A = Z for* | *(q) total negative charge* |
| *(c) Number of protons* | *(r) A - Z* |
| *(d) Number of neutrons* | *(s) Atomic Number* |

**49.** ***Match the type of matter in Column I with the examples given in Column II***

| ***Column I*** | ***Column II*** |
|---|---|
| *(a) plasma* | *(p) mercury – a metal* |
| *(b)solid* | *(q) methane* |
| *(c)liquid* | *(r) dry ice* |
| *(d) gas* | *(s) core of the sun* |

***50. Match the type of matter in Column I the examples given in Column II***

| ***Column I*** | ***Column II*** |
|---|---|
| *(a) element* | *(p) salt solution* |
| *(b) compound* | *(q) rain water* |
| *(c) homogeneous mixture* | *(r) Iron* |
| *(d) heterogeneous mixture* | *(s) marble* |

## SECTION - I

### Straight Objective Type

**1.** *As cations are positively charged, they are attracted to the cathode (negative plate) during electrolysis, as it is negatively charged.*
***Hence B is the correct option.***

**2.** *Liquids do not have definite shape as they take the shape of the container in which they are kept. Their volume is however fixed.*
***Hence C is the correct option.***

**3.** *According to Kinetic Theory, inter particle distances are maximum in gases and minimum in solids.*
***Hence C is the correct option.***

**4.** *According to Kinetic Theory, as inter particle distances are maximum in gases and minimum in solids the inter particle attractions are minimum in gases and maximum in solids.*
***Hence B is the correct option.***

**5.** *The direct conversion of solid state to gaseous state without becoming a liquid is called sublimation.*
***Hence D is the correct option.***

**6.** *Evaporation is the conversion of liquid state to gaseous state at temperatures below the boiling point. Since room temperature will be below the boiling point.*
***Hence B is the correct option.***

**7.** *Anions form due to gain of electrons by the neutral atom. The number of protons in the ion remains unchanged.*
***Hence C is the correct option.***

**8.** *Cations form due to loss of electrons from the valence shell of the neutral atom. The number of electrons in the parent atom is greater than the cation.*
***Hence A is the correct option.***

**9.** *The hydroxide radical is made up of one H-atom and one 0-atom and its formula is* $OH^-$.
***Hence C is the correct option.***

**10.** *A pure substance consists of particles of only one kind. Sugar consists of only sugar particles, distilled water consists of only water molecules, and copper wire is made up of only copper atoms. An alloy is a mixture of two or three metals.*
***Hence A is the correct option.***

**11.** *All the three options are the characteristic properties of matter. Matter has mass, occupies volume and can be perceived (felt) by our senses.*
***Hence D is the correct option.***

**12.** *The inter particle distances in solids is smaller than liquids than in gases. Between the two solids gold and sugar, gold is a metal while sugar is a rigid and brittle crystal that is relatively easily broken. Thus the increasing order is as given in option C.*
***Hence C is the correct option.***

**13.** *The pressure exerted by a gas is due to the force exerted by collisions of the gas particles with the walls of the container.*
***Hence B is the correct option.***

**14.** *The odour of the perfume can be felt at the other corner of a room as the particles of the gaseous perfume are constantly moving in all directions.*
***Hence A is the correct option.***

**15.** *Since a chalk piece can be easily broken when compared to \an iron piece, the inter particle forces of attraction are smaller in chalk piece than in the iron piece.*
***Hence A is the correct option.***

**16.** *Even if compressed cotton will have more quantity of matter as compared to sugar.*
***Note*** *the ratio of Mass and volume is called density. Since density of cotton is less than sugar, mass of a given volume of cotton will be less than the mass of a same volume of sugar.*
***Hence B is the correct option.***

**17.** *One kg of cotton occupies more space than a kg of sugar. This is because of air spaces between the particles of cotton.*
***Since*** *density of cotton is less than sugar, volume of a given mass of cotton will be more than the volume of the same mass of sugar.*
***Hence B is the correct option.***

**18.** *In solids as the particles are very close and almost touching each other. Due to this the particles can have only vibratory motion.*
***Hence C is the correct option.***

**19.** *In liquids the particles have more motion than in solids but less than in gases. Due to this the particles have random motion within the surface of the liquid.*
***Hence A is the correct option.***

**20.** *In gases the particles have more motion than in liquids and solids. Due to this the particles have random motion and occupy the entire volume available to them.*
***Hence A is the correct option.***

**21.** *As inter particle distances are maximum in gases they can be brought closer together by compressing or increasing pressure. The opposite is the case if pressure is decreased.*

***Hence B is the correct option.***

**22.** *As increasing the temperature increases the vibratory motion in all the three states of matter, the volume changes significantly (that is the change can be measured) in all three states.*
***Hence D is the correct option.***

**23.** *Density is the ratio of mass of matter to its volume. For a given quantity of matter, the particles will be arranged closest in its solid state when compared to its liquid state when compared to its gaseous state. Hence density of matter in its solid state is the highest.*
***Hence A is the correct option.***

**24.** *Energy possessed by particles of matter by virtue of its motion is called Kinetic Energy. Since motion of particles of matter in its solid state is the least, the kinetic energy in the solid state of matter will be the least when compared to its liquid or gaseous states.*
***Hence A is the correct option.***

**25.** *In gaseous state the particles of matter are wide apart. In liquid state and solid state the particles of matter are more condensed or close together.*
***Hence C is the correct option.***

## SECTION - II
### Assertion - Reason Questions

**26.** *Cations form when an atom looses electrons. Cations carry positive charge, as the number of electrons is less than the number of protons.*
***Hence A is the correct option.***

**27.** *When an atom gains electrons it becomes negatively charged. These ions are called anions. An atom has protons but the correct*

*reason is that an anion has more electrons than protons and hence, it carries negative charge.*

***Hence B is the correct option.***

**28.** *Plasma state exists only at very high stemperatures as present in the sun or stars. It is a fused ionic mass. Statement 1 is therefore wrong.*

***Hence D is the correct option.***

**29.** *Molecules by definition are the smallest particles of matter made up of two or more atoms combined chemically. They can exist independently. Statement 1 and 2 are therefore correct. But Statement 2 is not the reason for Statement 1.*

***Hence B is the correct option.***

***Note -*** *Atoms may or may not exist independently. For example O-atom cannot exist independently whereas* $O_2$ *(oxygen molecule) can exist independently. But, He-atom can exist independently.*

**30.** *Sponge is not a continuous mass of sponge as sponge has air spaces in between the particles of sponge. Sand also has air spaces between the particles of sand but they are very small in comparison to sponge. Hence sponge can be compressed the most when compared to iron and sand.*

***Hence B is the correct option.***

**31.** *The mass of sugar kept in a container consists of air spaces in between and hence the mass of table sugar is not continuous matter made up of only one kind of particles. So strictly speaking it is the mass of table sugar with the air spaces in between that takes the shape of the container in which it is kept. Statement 1 is therefore correct. A sugar crystal is a solid and has a definite shape of its own. Statement 2 is also correct though not the reason for Statement 1.*

***Hence B is the correct option.***

**32.** *Statement 1 is correct. The boiling point of water is higher than ethanol as the inter particle forces of attraction are greater in water than in ethanol. Is correct.*
***Hence A is the correct option.***

**33.** *Liquids take the shape of the container in which they are kept as the inter particle distances are more than in a solid. When a liquid is poured into a container the particles arrange themselves by pushing at each other to take the shape of the container. The particles in a solid cannot push against each other as they are packed very tightly and are closer together.*
***Hence A is the correct option.***

**34.** *As the particles of matter in gaseous state possess the greatest motion when compared to liquids, the movement of particles will be maximum when two gases are mixed when compared two liquids that are mixed. Statement 1 is thus wrong.*
***Hence D is the correct option.***

**35.** *Matter exists in liquid state when the pressure is normal only if the temperature is above its freezing point and below its boiling point. Below its freezing point matter will solidify and above its boiling point matter becomes gaseous.*
***Hence A is the correct option.***

**36.** *By definition sublimation is the direct conversion of solid to gas or gas to solid. The liquid state is not encountered during the conversion. Statement 2 is not correct as both solid to gas and gas to solid conversions are called sublimation.*
***Hence C is the correct option.***

**37.** *As matter converts from gaseous state to liquid state, the particles move close together. The particles move a little closer together on further conversion from liquid state to gaseous state – but the particles are already close in the liquid state and hence the change*

*in volume is the least. Statement 2 is therefore correct reason for Statement-1.*

***Hence A is the correct option.***

**38.** *One kg of water at $0^oC$ will release (as given in Statement 2) Latent Heat of Solidification to become ice at $0^oC$. Hence water at $0^oC$ has more energy than ice at $0^oC$. Statement 1 is correct and the reason is Statement-2.*

***Hence A is the correct option.***

**39.** *One kg of water at $100^oC$ will absorb (not give up as given in Statement 2) Latent Heat of Vaporisation to become steam at $100^oC$. Hence water at 100°C has less energy than steam at $100^oC$. Statement 1 is correct while Statement 2 is wrong.*

***Hence C is the correct option.***

**40.** *Boiling point is that temperature at which matter changes from liquid state to gaseous state. Boiling point will be high if inter particle forces of attraction 4 are high. So, Statement 1 is wrong and Statement 2 is right.*

***Hence D is the correct option.***

## SECTION - III

## Linked Comprehension Type

**41.** *The fundamental particles present in the nucleus of an atom are protons and neutrons. The sum total of the protons and neutrons is called Mass Number.*

***Hence B is the correct option.***

**42.** *The sum total of the protons and neutrons is called Mass Number. The number of protons in the nucleus of an atom is called Atomic Number. Mass Number is denoted by the symbol A and Atomic*

*Number by the symbol Z. The difference (A - Z) gives the number of neutrons in the nucleus.*
***Hence C is the correct option.***

**43.** *All particles present in the nucleus are called nucleons.*
***Hence D is the correct option.***

**44.** *As the nuclear charge in H-atom 1 proton, H-atom has 1 + charge. Thus the given atom has 13 4-charges. The neutral atom will have an equal negative charge. Thus the number c electrons in the atom is 13.*
***Hence A is the correct option.***

**45.** *Kerosene and petrol are two liquids with a small but significant difference in boiling point. This fact is used to separate a mixture of the two liquids by fractional distillation.*
***Hence B is the correct option.***

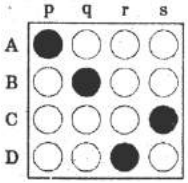
**46.** *Separation of a mixture into its constituents depends on their physical state, physical and chemical properties.*
***Hence D is the correct option.***

**47.** *Fractional distillation involves separating two liquids by slow heating. As the temperature reaches the boiling point of the liquid with the lower value it boils off. The liquid with the higher boiling point will therefore boil off last.*
***Hence B is the correct option.***

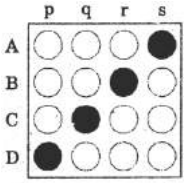
## SECTION - IV

### Matrix - Match Type

***48.***




***49.***




***50.***