



# MAA SARASWATI STUDYING CENTRE

For: - I to XII<sup>th</sup> (C.B.S.E, B.S.E.B, & I.C.S.E) & 10+2 (ONLY MATHEMATICS)

Venue: - Sharda Market 1<sup>st</sup> Floor, Sampatchak, Patna-07

## ASSIGNMENT

- :FOR CLASS – IX<sup>th</sup>: -

- : Chapter – 1 “Matter In Our Surroundings” : -

### I. Very Short Answer Type Questions : -

1. Can matter be realised by our senses?
2. What is dry ice?
3. What is the physical state of dry ice?
4. Name the physical state of matter which can be easily compressed?
5. What are the constituent particles of matter?
6. Will increase or decrease of pressure help to liquefy a gas?
7. What type of motion is possessed by the constituent particles of a solid?
8. What happens to the kinetic energy of particles of matter when the temperature is increased?
9. What names are given to the gaseous state of water below 100°C and above 100°C?
10. Why do solids possess high density?
11. Which among solids, liquids and gases are most compressible?
12. What is the effect of increase in surface area on evaporation and vapour pressure?
13. Can an increase or decrease in pressure, change the state of matter?
14. Can heat or sound be regarded as matter?
15. Between, liquids and gases, which have a fixed volume but not a fixed shape?
16. Why do gases have a great tendency to diffuse?
17. How can matter be changed from one state to another?
18. Does water evaporate at 10°C?
19. Which substance acts as a solvent in a solution?
20. Which substance acts as solvent in aerated water?
21. What happens when a saturated solution is heated?
22. What is the shining liquid used in clinical thermometer?
23. Give one example of solution of gas in liquid
24. Give one example of mixture of number of gases.
25. Which state of matter is rigid?
26. How the pressure of a gas is expressed?
27. In which state interparticle space is minimum?
28. In which state kinetic energy of particles is maximum?
29. What is the unit of latent heats?
30. In which state random motion of particles is noticed?

31. What name is assigned for the conversion of gas directly into solid?
32. Which property is responsible when you smell fragrance of spray if spread on one corner of room?
33. What does we feel on palm, if little petrol is put on palm?
34. What property is observed when little sugar is added to water?
35. Give one example of frosting.
36. Which one has higher vapour pressure, Diesel or petrol?
37. The density of gas is expressed in which unit?
38. The density of solid and liquid is expressed in which unit?
39. What does C.N.G and L. P. G signify?

## II. Objective (Multiple Choice) Questions : -

1. Which of the following is not a matter?  
(a) Water (b) Heat  
(c) Steel (d) Kerosene.
2. The interparticle distance is minimum in  
(a) nitrogen (b) water  
(c) diamond (d) carbon dioxide.
3. The interparticle forces are strongest in  
(a) graphite (b) milk  
(c) oxygen (d) water.
4. Gases can flow freely in any direction because  
(a) they possess weak cohesive forces  
(b) they possess moderate cohesive forces  
(c) they possess very strong cohesive forces  
(d) they do not possess any cohesive forces.
5. The evaporation  
(a) decreases with a rise in temperature  
(b) increases with an increase in surface area  
(c) increases with increase in humidity  
(d) decreases with increase in the wind speed.
6. Evaporation causes  
(a) heating  
(b) cooling  
(c) neither heating nor cooling  
(d) sometimes heating and sometimes cooling.
7. Which of the following statements is not correct?  
(a) Evaporation is a surface phenomenon  
(b) Evaporation takes place at all temperatures  
(c) The temperature of a boiling liquid remains constant  
(d) Boiling of a liquid involves formation of bubbles only at the surface of the liquid.
8. Which of the following substances is unable to undergo sublimation?  
(a) Camphor (b) Naphthalene  
(c) Common salt (d) Dry ice.
9. The boiling point of water at the Kelvin scale is  
(a) 173 K (b) 100K  
(c) 272 K (d) 373.16 K.

10. Gases have  
(a) fixed shape (b) fixed volume  
(c) both fixed shape and fixed volume  
(d) neither fixed shape nor fixed volume.
11. Which of the following shows the strongest interparticle forces at the room temperature?  
(a) Nitrogen (b) Mercury  
(c) Iron (d) Chalk
12. What is volume of gases?  
(a) Definite (b) Almost Nil  
(c) Large (d) Take the volume of container
13. The change of state from solid to liquid known as  
(a) Fusion (b) Boiling  
(c) Freezing (d) Frosting
14. Dry ice is  
(a) Water in solid state (b) Water in gaseous state  
(c) CO<sub>2</sub> in liquid state (d) CO<sub>2</sub> in solid state
15. The freezing point of water on kelvin scale is  
(a) 573 K (b) 273.16 K  
(c) 373.16 K (d) 100 K
16. The process showing change of a liquid into vapour at any temperature is called  
(a) Diffusion (b) Evaporation  
(c) Cooling (d) Heating
17. Which factor affects Evaporation  
(a) Temperature (b) Surface area  
(c) Both (a) and (b) (d) None of these
18. On increasing the temperature of the liquid the rate of evaporation  
(a) Increases (b) Decreases  
(c) No Change (d) None of these
19. Fluids are  
(a) Liquids and gases (b) Solids and gases  
(c) Liquids and solids (d) Only solids
20. Which substance undergo sublimation process  
(a) Naphthalene (b) CO<sub>2</sub>  
(c) O<sub>2</sub> (d) N<sub>2</sub>
21. Condensation Process is  
(a) Change of state from gas to liquid  
(b) Change of state from liquid to gas  
(c) Change of state from gas to solid  
(d) Change of state from solid to liquid
22. The temperature at which liquid starts boiling at one atmospheric pressure known as  
(a) Melting point (b) Boiling point  
(c) Latent heat (d) Condensation
23. The melting point of ice is  
(a) 0°C (b) 4°C  
(c) 5°C (d) None of these

24. The physical state of matter which can be easily compressed  
 (a) Liquid (b) Gas  
 (c) Solid (d) None of these
25. Name the process by which a drop of ink spreads in a beaker of water  
 (a) Diffusion (b) Vaporization  
 (c) Condensation (d) Sublimation
26. Convert the temperature of  $373^{\circ}\text{C}$  to the kelvin scale?  
 (a) 646.16 K (b) 546 K  
 (c) 300 K (d) 500 K
27. Plasma is the ..... state of matter  
 (a) First (b) Second  
 (c) Third (d) Fourth
28. Convert the temperature of 270 K to the celsius scale  
 (a)  $-2.84^{\circ}\text{C}$  (b)  $-4^{\circ}\text{C}$   
 (c)  $2^{\circ}\text{C}$  (d)  $5^{\circ}\text{C}$
29. The process for the change of a solid directly into its vapour is called  
 (a) Evaporation (b) Frosting  
 (c) Condensation (d) Sublimation
30. A few substances are arranged in the increasing order of 'forces of attraction between their particles'. Which one of the following represents a correct arrangement?  
 (a) Water, sugar, air (b) Sugar, air, water  
 (c) Sugar, water, air (d) Air, water, sugar.
31. Which is correct statement about fluidity?  
 (a) only gases behave as fluids  
 (b) both solids and liquids behave as fluids  
 (c) only liquids behave as fluids  
 (d) both liquids and gases behave as fluids.
32. Which one of the following sets of phenomena would increase on raising the temperature?  
 (a) Evaporation of liquid  
 (b) Sublimation of solid  
 (c) Solubility of sugar in water  
 (d) All will increase
33. During summer, water kept in an earthen pot becomes cool because of the phenomenon of  
 (a) diffusion (b) liquefaction  
 (c) osmosis (d) evaporation.
34. Under which of the following conditions, the distance between the molecules of oxygen gas would increase?  
 (i) Increasing pressure on oxygen contained in a closed container.  
 (ii) Some oxygen gas leaking out of the container.  
 (iii) Increasing the volume of the container of oxygen gas  
 (iv) Adding more oxygen gas to the container without increasing the volume of the container.
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 (a) (i) and (ii) (b) (i) and (iv)  
 (c) (ii) and (iii) (d) (ii) and (iv).

35. Which condition out of the following will increase the evaporation of ether?
- Increase in temperature of ether
  - Decrease in temperature of ether
  - Decrease in exposed surface area of ether
  - None of these.
36. Choose the incorrect statement from the following:
- conversion of solid into vapours without passing through the liquid state is called sublimation.
  - conversion of vapours into solid without passing through the liquid state is called Frosting.
  - conversion of liquid into solid state is called freezing
  - conversion of solid into liquid is called liquefaction.
37. On converting  $30^{\circ}\text{C}$ ,  $45^{\circ}\text{C}$  and  $58^{\circ}\text{C}$  to kelvin scale, the correct sequence of temperatures will be
- 303 K, 318 K, 331 K
  - 318 K, 331 K, 303 K
  - 331 K, 318 K, 303 K
  - 318 K, 303 K, 331 K.
38. Match the physical quantities given in column A to their S.I. units given in column B.
- | (A)             | (B)                    |
|-----------------|------------------------|
| (a) Speed       | (i) cubic metre        |
| (b) Temperature | (ii) kilogram          |
| (c) Area        | (iii) metre per second |
| (d) Mass        | (iv) kelvin            |
| (e) Volume      | (v) square metre.      |
| (f) Pressure    | (vi) newton            |
40. Which of the following is not matter ?
- Fog
  - Humidity
  - Melting Point
  - Blood
41. Which of the following statements is not correct ?
- Matter is continuous in nature.
  - The spaces between the particles of gas are the largest.
  - The particles of matter move in a zig-zag manner.
  - The solid state is the most compact state of matter.
42. Which of the following statements does not make any sense ?
- Solids have minimum kinetic energy.
  - Gases have the maximum property of diffusion.
  - Fluidity is maximum in the liquid state.
  - Solids have only vibratory motion.
43. Which of the following pairs will not exhibit diffusion ?
- hydrogen, oxygen
  - oxygen, water
  - salt, salt
  - sugar, water
44. In which of the following substances, the interparticle forces of attraction are the strongest ?
- Sodium chloride
  - Glycerine
  - Ethyl alcohol
  - Carbon dioxide
45. Which of the following indicates the relative randomness of particles in three states of matter ?
- solid > liquid > gas
  - liquid < solid < gas
  - liquid > gas > solid
  - gas > liquid > solid

46. Which one of the following sets of phenomena would increase on raising the temperature ?
- Diffusion, evaporation, compression of gases
  - Evaporation, compression of gases, solubility
  - Evaporation, diffusion, expansion of gases
  - Evaporation, solubility, diffusion, compression of gases
47. Seema visited a Natural Gas Compressing Unit and found that the gas can be liquefied under specific conditions of temperature and pressure. While sharing her experience with friends she got confused. Help her to identify the correct set of conditions
- Low temperature, low pressure
  - High temperature, low pressure
  - Low temperature, high pressure
  - High temperature, high pressure
48. The property to flow is unique to fluids. Which one of the following statements is correct ?
- Only gases behave like fluids
  - Gases and solids behave like fluids
  - Gases and liquids behave like fluids
  - Only liquids are fluids
49. During summer, water kept in an earthen pot becomes cool because of the phenomenon of
- diffusion
  - transpiration
  - osmosis
  - evaporation
49. A few substances are arranged in the increasing order of 'forces of attraction' between their particles. Which one of the following represents a correct arrangement ?
- Water, air, wind
  - Air, sugar, oil
  - Oxygen, water, sugar
  - Salt, juice, air
50. On converting 25°C, 38°C and 66°C to Kelvin scale, the correct sequence of temperature will be
- 298 K, 311 K and 339 K
  - 298 K, 300 K and 338 K
  - 273 K, 278 K and 543 K
  - 298 K, 310 K and 338 K
51. Choose the correct statement of the following
- conversion of solid into vapours without passing through the liquid state is called vapourisation.
  - conversion of vapours into solid without passing through the liquid state is called sublimation.
  - conversion of vapours into solid without passing through the liquid state is called freezing.
  - conversion of solid into liquid is called sublimation.
52. The boiling points of diethyl ether, acetone and *n*-butyl alcohol are 35°C, 56°C and 118°C respectively. Which one of the following correctly represents their boiling points in kelvin scale ?
- 306 K, 329 K, 391 K
  - 308 K, 329 K, 392 K
  - 308 K, 329 K, 391 K
  - 329 K, 392 K, 308 K
53. Which condition out of the following will increase the evaporation of water ?
- Increase in temperature of water
  - Decrease in temperature of water
  - Less exposed surface area of water
  - Adding common salt to water
54. In which of the following conditions, the distance between the molecules of hydrogen gas would increase ?
- Increasing pressure on hydrogen contained in a closed container.
  - Some hydrogen gas leaking out of the container.
  - Increasing the volume of the container of hydrogen gas.
  - Adding more hydrogen gas to the container without increasing the volume of the container.
- (i) and (iii)
  - (i) and (iv)
  - (ii) and (iii)
  - (ii) and (iv)

### III. Fill in the blanks :-

- S.I. unit of density is .....
- The change of a liquid into vapour is called.....
- The matter in our surrounding exists in three states ....., ..... and .....
- Matter is made up of very small .....
- The change of a solid directly into gas is called .....
- Smell of cooked food reaches us in seconds due to the process known as .....
- Interparticle space in solids is ..... than that of liquids.
- ..... have definite volume but not definite shape.
- Rapid evaporation depends on the ..... exposed to atmosphere.
- Interparticle forces of attraction are ..... in solids, ..... in liquids and ..... in gases.
- Boiling point of water is ..... K and melting point of ice is ..... K.
- 1 atm is equal to .....
- Change of vapour state to liquid state is called .....
- The best evidence that the particles of matter are constantly moving comes from the studies of ..... and ..... and .....

15. Plasma is a mixture of ..... and .....
16. Conversion of vapours into solid is called .....
17. Evaporation of liquid ..... by increasing the surface area.
18. Impure sample of naphthalene can be purified by ..... process.
19. The boiling point temperature of liquid ..... when it starts boiling.
20. Vapour pressure of a liquid is ..... of surface area and ..... of temperature.
21. Evaporation of a liquid at room temperature leads to a ..... effect.
22. At room temperature the forces of attraction between the particles of solid substances are.....than those which exist in the gaseous state.
23. The arrangement of particles is less ordered in the ..... state. However, there is no order in the ..... state.
24. .... is the change of gaseous state directly to solid state without going through the ..... state.
25. Evaporation of a liquid at room temperature leads to a ..... effect.
26. At room temperature the forces of attraction between the particles of solid substances are ..... than those which exist in the gaseous state.
27. The arrangement of particles is less ordered in the ..... state. However, there is no order in the ..... state.
28. .... is the change of gaseous state directly to solid state without going through the ..... state.
29. The phenomenon of change of a liquid into the gaseous state at any temperature below its boiling point is called .....

#### IV. Match the following :-

1. Match the physical quantities given in column A to their SI units given in column B :

(A)	(B)
(a) Pressure	(i) Cubic Metre
(b) Temperature	(ii) Kilogram
(c) Density	(iii) Pascal
(d) Mass	(iv) Kelvin
(e) Volume	(v) Kilogram per cubic metre

2. The non SI and SI units of some physical quantities are given in column A and column B.  
Match the units belonging to the same physical quantity :

(A)	(B)
(a) Degree Celsius	(i) Kilogram
(b) Centimetre	(ii) Pascal
(c) Gram per centimeter cube	(iii) Metre
(d) Bar	(iv) Kelvin
(e) Milligram	(v) Kilogram per metre cube

#### V. Classify the following into osmosis/diffusion :

- (a) Swelling up of a raisin on keeping in water.
- (b) Spreading of virus on sneezing.
- (c) Earthworm dying on coming in contact with common salt.
- (d) Shrinking of grapes kept in thick sugar syrup.
- (e) Preserving pickles in salt.
- (f) Spreading of smell of cake being baked through out the house.
- (g) Aquatic animals using oxygen dissolved in water during respiration.

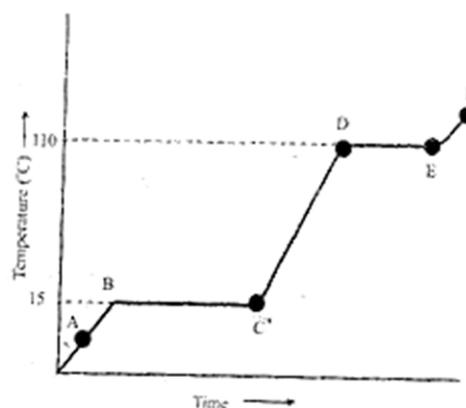


## VI. True / False Statements :-

1. Air, water, chair, table and smell are examples of matter.
2. Gases have highest rate of diffusion among all the three states of matter.
3. Evaporation causes cooling.
4. Camphor changes to gaseous state without changing into liquid.
5. Water has boiling point equal to  $100^{\circ}\text{C}$ .
6. Evaporation is a bulk phenomenon.
7. Interparticle forces are maximum in solids and minimum in gases.
8. Condensation is opposite to evaporation and freezing is opposite to melting.
9. The humidity is one of the factors which influences the rate of evaporation.
10. The density of gas is usually expressed in  $\text{g/mL}$ .
11. Heavier gases can not move upwards.
12. We sweat more on a humid day than on a dry day.
13. Cooling is noticed during boiling like evaporation.
14. Evaporation is slow under humid weather.
15. S I unit of pressure is newton.
16. Latent heat of fusion if expressed in  $\text{kJ/mol}$ , it is called molar heat of fusion.
17. Aquatic species for living take their oxygen which is dissolved in water.
18. Kinetic energy for liquid particles and vapours at the same temperature is equal.
19. Silica a covalent compound has very high m.p.t due to giant molecular structure.
20. Freezing point and melting point of same substances have different values.

## VII. The graph shows the heating curve for a pure substance. The temperature rises with time as the substance is heated :

- (a) What is the physical state of the substance at the points A, B, C, D, E and F?
- (b) What is the melting point of the substance?
- (c) What is its boiling point?
- (d) What happens to the temperature during change of the state?
- (e) The substance is not water. How can you judge from the graph?



## VIII. The heating curve for a pure substance at one atmosphere pressure is shown in fig. below :

- (a) What is the physical state of the substance at points A, B, C, D and E.
- (b) What is the melting point of the substance ?
- (c) What is the boiling point of the substance ?
- (d) What happens to the temperature when the substance is changing its state ?
- (e) Can the given substance be ice at point A ?

