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Std 10 (English)

Science And Technology - I

Date 27-09-20

Time 1HRS

Chapter 5.00

Marks 20

Q.1 Multiple Choice Questions

1

- 1 The temperature of ice can be decreased below 0°C by mixing in it.
a. saw dust b. sand c. salt d. coal

Ans Option c.

Q.2 Find the odd one out

1

- 1 cal/g, cal/g.°C, kcal/kg.°C, erg/g.°C

Ans cal/g

Q.3 Find co-related terms

1

- 1 Ice: 80cal/g:: Water:

Ans Ice: 80cal/g:: Water: **540cal/g**

Q.4 Match the pair

1

1	Column "A"	Column "B"
	i. Specific Latent heat of fusion of ice	a. 100°C
	ii. Specific Latent heat of evaporation	b. 80 cal/g
		c. 540 cal/g

Ans	i. Specific Latent heat of fusion of ice	80 cal/g
	ii. Specific Latent heat of evaporation	540 cal/g

Q.5 State True or False

1

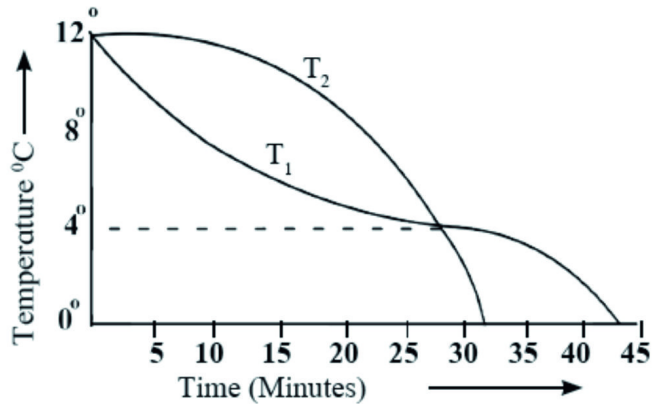
- 1 The crumbling of the rock is due to the anomalous expansion of water.

Ans The crumbling of the rock is due to the anomalous expansion of water.- **True.**

Q.6 Name the following

1

- 1 Time - temperature graph for two thermometers T_1 and T_2 inserted in Hope's apparatus is given below.



What does the point of intersection of two curves show ?

Ans The point of intersection of two curves shows the temperature of maximum density of water.

Q.7 **Laws/define/principles** **2**

1 Dew point temperature.

Ans Unsaturated air at a certain temperature is taken and its temperature is decreased, a temperature is reached at which the air becomes saturated with vapor. This temperature is called the dew point temperature.

Q.8 **Distinguish between** **2**

1 Absolute humidity and Relative humidity.

Ans

	Absolute humidity	Relative humidity
i.	The mass of vapor present in a unit volume of air is called absolute humidity.	The ratio of actual mass of vapor content in the air for a given volume and temperature to that required to make the air saturated with vapor at that temperature is called the relative humidity.
ii.	Absolute humidity is measured in kg/m^3 .	Relative humidity is measured in term of percentage.
iii.	Mass of water vapor is measured.	The extent of humidity is measured.

Q.9 **Give examples** **2**

1 Name 4 substances whose Specific heat capacity is less than 1.

Ans Iron, Paraffin, Mercury, Silver, Copper, Aluminium, Kerosene (any 4)

Q.10 **Give explanation using the given statements** **3**

1 Answer the following question with the help of given statement:

When water is heated up to a certain temperature, it expands and when cooled it contracts.

1. What term is used to describe such behaviour of water?
2. What happens when water is cooled at room temperature?
3. What happens when water is heated?

Ans 1. The term used to describe such special and exceptional behaviour of water is Anomalous Behavior

of water.

2. If water is cooled at room temperature, it contracts till 4°C , but if it is cooled below 4°C to 0°C , then it expands instead of contracting.

3. If water at 0°C is heated, it contracts in volume instead of expanding till 4°C . Thus, at 4°C , the volume of water is minimum and then the volume increases as the temperature rises above 4°C .

Q.11 Answer the following in detail (Any One)

5

- 1
- What is melting point of solid ?
 - What is meant by latent heat of fusion ?
 - What is the boiling point of liquid ?
 - What is meant by latent heat of vaporization ?
 - Name the apparatus used to study the anomalous behavior of water in the laboratory.

- Ans**
- The constant temperature at which solid converts into liquid is called melting point of solid.
 - The heat energy absorbed at constant temperature during transformation of solid into liquid is called latent heat of fusion.
 - The constant temperature at which the liquid transforms into gaseous state is called the boiling point of liquid.
 - The heat energy absorbed at constant temperature during transformation of liquid into gas is called the latent heat of vaporization.
 - Hope's apparatus is used to study the anomalous behavior of water in the laboratory.

- 2 Read the paragraph and answer the following questions:

If heat is exchanged between a hot and cold object, the temperature of the cold object goes on increasing due to gain of energy and the temperature of the hot object goes on decreasing due to loss of energy.

The change in temperature continues till the temperatures of both the objects attain the same value. In this process, the cold object gains heat energy and the hot object loses heat energy. If the system of both the objects is isolated from the environment by keeping it inside a heat resistant box (meaning that the energy exchange takes place between the two objects only) then no energy can flow from inside the box or come into the box.

- Heat is transferred from where to where?
- Which principle do we learn about from this process?
- How will you state the principle briefly?
- Which property of the substance is measured using this principle?

- Ans**
- Heat is transferred from hot object to cold object.
 - This process shows the principle of heat exchange.
 - In this process, the cold object gains heat energy and the hot object loses heat energy. If the system of both the objects is isolated from the environment, Heat energy lost by the hot object = Heat energy gained by the cold object. This is called the principle of 'Heat Exchange'.
 - The specific heat of the substance is measured by using this principle.