

CLASS-IX (CHEMISTRY)

CH-1: MATTER IN OUR SURROUNDINGS WORKSHEET-5 (ANSWERS)

1. The boiling point of ethyl alcohol is 78°C . What is the corresponding temperature on Kelvin scale?

Given:

Boiling point of ethyl alcohol = 78°C

we know,

$$K = C + 273$$

or, $K = 78 + 273$

or, $K = 351$

therefore, $78^{\circ}\text{C} = 351\text{ K}$

2. State true or false. And if false, correct the statement:

(a) The number of divisions in a Fahrenheit scale is equal to 100.

False, the number of divisions in a Fahrenheit scale is equal to 180.

(b) The upper fixed point or steam point in Kelvin scale is 273 K.

False, the upper fixed point or steam point in Kelvin scale is 373 K.

(c) To convert Celsius scale into Kelvin scale we have to add 273.

True.

(d) The absolute zero temperature is 0°C .

False, the absolute zero temperature is 0 K.

(e) Fahrenheit scale is used to measure the human body temperature.

True.

3. Convert 0 K into °F.

Given:

Temperature in Kelvin scale=0 K

we know,

$$\frac{K-273.15}{5} = \frac{F-32}{9}$$

or,
$$\frac{0-273.15}{5} = \frac{F-32}{9}$$

or,
$$\frac{-273.15}{5} = \frac{F-32}{9}$$

or,
$$-273.15 \times 9 = 5(F - 32)$$

or,
$$-2458.35 = 5F - 160$$

or,
$$-2458.35 + 160 = 5F$$

or,
$$-2298.35 = 5F$$

or,
$$F = \frac{-2298.35}{5}$$

or,
$$F = -459.67$$

therefore,
$$0 \text{ K} = -459.67 \text{ } ^\circ\text{F}$$

CLASS-IX (CHEMISTRY)

CH-1: MATTER IN OUR SURROUNDINGS WORKSHEET-6 (ANSWERS)

1. Fill in the blanks:

- (a) Evaporation of a liquid at room temperature leads to a cooling effect.
- (b) Boiling is a bulk phenomenon.
- (c) Evaporation of water is a physical change.
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2. Give reason:

- (a) We feel cold if some spirit is applied on our skin.

We feel cold if some spirit is applied on our skin because spirit is volatile and particles of the spirit gain heat energy from that part of the skin and evaporates causing a cooling sensation.

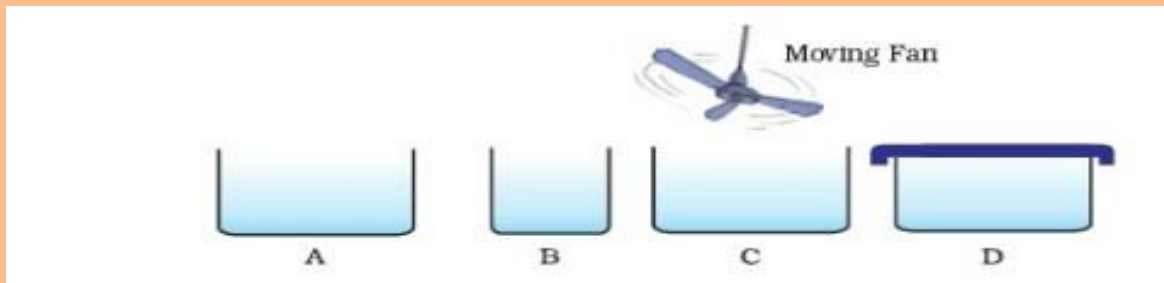
- (b) It takes longer time to dry wet clothes in humid weather.

We know the rate of evaporation is inversely proportional to the amount of humidity. Thus rate of evaporation is very less in humid weather. Hence, it takes longer time to dry cloth in humid weather.

- (c) Butter is generally wrapped in wet cloth during summer when refrigerator is not working.

It is to provide the required cooling. By absorbing heat from the surroundings, the water from the wet cloth evaporates giving the butter a cold environment in order to protect it from becoming rancid.

3. Look at the figure and suggest in which of the vessel A, B, C or D the rate of evaporation will be the highest? Explain.



The rate of evaporation will be highest in the vessel 'C' because it is open plus having greater surface area with wind speed.

4. It is a hot summer day; Priyanshi and Ali are wearing cotton and nylon clothes respectively. Who do you think would be more comfortable and why?

Priyanshi will be more comfortable wearing cotton clothes. Cotton being a good absorber of water helps in absorbing the sweat and exposes it more for easy evaporation causing a cooling effect.

5. You want to wear your favorite dress to a party, but the problem is that it is still wet after a wash. What steps would you take to dry it faster?

I would spread out my wet dress in front of the cooler or fan or in the natural wind for faster evaporation. I can also use hot iron if it is slightly wet. If it is day time, I would spread out my wet dress under sunlight.