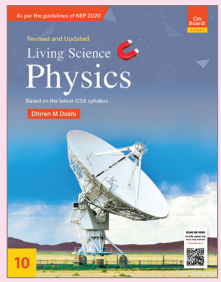
ICSE Living Science PHYSICS

Class 10



Multiple-Choice Questions

Chapter 11: CALORIMETRY AND LATENT HEAT

1. What is the primary factor responsible for a body to possess heat energy or thermal energy?

   (a) Surrounding heat energy
   (b) Random motion of molecules of the body
   (c) Heat captured by its molecules at the time of their formation
   (d) Collision among molecules of the body

   Ans: (b)

2. The amount of heat required to increase the temperature of one gram of pure water from 14.5 °C to 15.5 °C is known as

   (a) 1 cal (b) 1 J (c) 1 kJ (d) 1 kcal

   Ans: (a)

3. Identify the correct formula to convert temperature in °C to K.

   (a) T (K) = θ (°C) + 273.15
   (b) T (K) = θ (°C) – 273.15
   (c) T (K) = θ (°C) × 273.15
   (d) T (K) = θ (°C)/273.15

   Ans: (a)

4. Which of the following statements is correct?

   At absolute zero the

   (a) PE of atoms and molecules is maximum and the KE is zero.
   (b) PE of atoms and molecules is zero and the KE is maximum.
   (c) PE of atoms and molecules is the same as their KE and is at the maximum.
   (d) PE of atoms and molecules is the same as their KE and it is zero.

   Ans: (a)

5. The correct SI unit of specific heat (C) is

   (a) J kg^{-1} K^{-1} (b) J^{-1} kg^{-1} K (c) J g^{-1} K^{-1} (d) J g^{-1} K

   Ans: (a)

6. Calculate the energy required to boil 1.5 kg of water from its initial temperature 25 °C. The specific heat of water is 4.18 J g^{-1} K^{-1}.

   (a) 470.25 J (b) 704.25 J (c) 704.25 kJ (d) 470.25 kJ

   Ans: (d)

7. Sea breeze occurs because

   (a) specific heat capacity of water is less than that of sand.
   (b) specific heat capacity of water is more than that of sand.
   (c) specific heat capacity of water and sand is equal.
   (d) None of the above.

   Ans: (b)

8. In case of sea breeze, which of the following occurs?
   (a) The low pressure created above the sea is filled by air rushing in from the adjacent land.
   (b) The high pressure created above the sea is filled by air rushing in from the adjacent land.
   (c) The low pressure created above the land is filled by air rushing in from the adjacent sea.
   (d) The high pressure created above the land is filled by air rushing in from the adjacent sea.
   Ans: (c)

9. Which of the following is correct about land breeze?
   (i) It generally occurs at day time.
   (ii) It generally occurs at night time.
   (iii) It is flow of cooler air from sea to land.
   (iv) It is flow of cooler air from land to sea.
   (a) (i) and (iii)
   (b) (i) and (iv)
   (c) (ii) and (iii)
   (d) (ii) and (iv)
   Ans: (d)

10. Water is used as coolant in cars due to which of the following reasons?
   (a) It has high heat capacity.
   (b) It has low heat capacity.
   (c) It is easily available.
   (d) It is colourless and odourless.
   Ans: (a)

11. Why is calorimeter made of thin sheet of copper?
   (i) Copper has high specific heat.
   (ii) Copper has low specific heat.
   (iii) Thin sheet of copper will mean less mass of copper used.
   (a) (i) only
   (b) (i) and (iii) only
   (c) (ii) and (iii) only
   (d) (i), (ii), and (iii)
   Ans: (c)

12. Which of the following statements is correct?
   (a) During change of state temperature of the substance increases.
   (b) During change of state temperature of the substance decreases.
   (c) During change of state temperature of the substance remains constant.
   (d) None of the above.
   Ans: (c)

13. Pure water freezes at 0 °C at 1 atm pressure. What happens to its freezing point if a pinch of salt is added to the water?
   (a) It increases.
   (b) It decreases.
   (c) It remains same.
   (d) The increase or decrease depends on the type of salt taken.
   Ans: (b)

14. Take a beaker full to the brim with water. What will happen when this beaker is put into freezer?
   (a) The ice formed will break the beaker as its volume will increase.
   (b) The ice formed will shrink and the volume will be less than that of water.
   (c) The ice formed will be as much in volume as was water in the beaker.
   (d) None of the above.
   Ans: (b)

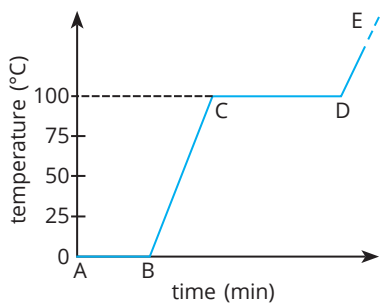
15. What will happen to the boiling point of water if a pinch of salt is added to it?
    (a) It will increase.
    (b) It will decrease.
    (c) It will remain same.
    (d) Whether it will increase or decrease will depend on the amount of salt added.
    Ans: (a)

16. If pressure on the liquid increases, its boiling point will
    (a) decrease. (b) increase. (c) remain same. (d) none of these.
    Ans: (b)

17. It is preferred to cool drinks by pouring ice rather than adding water at 0 °C. This is because
    (a) ice melts slowly, so the drink remains cold for a longer period.
    (b) ice can be observed floating in the drink.
    (c) ice absorbs heat from the system while it melts, making the drink colder compared to if water had been added.
    (d) None of the above.
    Ans: (c)

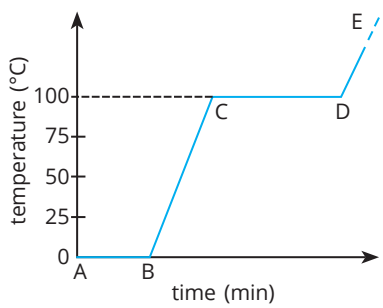
18. The weather becomes cold after a hailstorm. It is because
    (a) ice blocks share lower temperature with the surrounding.
    (b) ice blocks collect together and form bigger blocks.
    (c) ice blocks while melt take the latent heat of melting from the atmosphere, resulting in temperature drop.
    (d) All of the above.
    Ans: (c)

19. Consider the following temperature–time graph for phase changes in water.



What is the composition in the region CD in the curve?
    (a) Water (b) Steam (c) Water + steam (d) Water + ice
    Ans: (c)

20. Consider the following temperature–time graph for phase changes in water.



What is the composition at the point A in the curve?
    (a) Ice (b) Water (c) Steam (d) Water + ice
    Ans: (a)