

PSA
CLASS VII SCIENCE
PASSAGE – 1

Energy is the ability to do work .Heat is a form of energy .Heat being a form of energy can be measured. It can be measured in joules or calories. In SI system, heat energy is measured in joules (J).One calorie = 4.18400 joules.

A temperature is a comparative objective measure of hot and cold. Temperature may be defined as the measure of hotness or coldness of a body. It is measured, typically by a thermometer. Celsius, Kelvin and Fahrenheit are some commonly used scales to measure temperature. Kelvin is the SI unit of temperature. $0^{\circ}\text{Celsius} = 273.16\text{Kelvin}$.For convenience we take $0^{\circ}\text{Celsius} = 273\text{Kelvin}$ after rounding off the decimal .To change a temperature on the Kelvin scale to Celsius scale, you have to subtract 273 from the given temperature and to convert a temperature on the Celsius scale to Kelvin scale you have to add 273 to the given temperature.

Expansion, increase in temperature, change of state etc are some common effects seen due to heating. Solids expand less than liquids, liquids expand less than gases. Thermal expansion is due to the increased energy of movement of the particles in a substance, forcing the particles further apart. Different metals expand at different rates.

1. A machine produces 50 calories of heat .How much is the heat produced in joules?
(a)100J (b)210.2J (c) 200J (d)209.2J
2. Maximum expansion due to heating is noticed in
(a)Solids (b)Liquids (c) Gases
(d) a, b and c shows the same rate of expansion.
3. Convert 373Kelvin to Celsius scale.
(a) 0°C (b) 100°C (c) 273°C (d) 373°C
4. Thermostats which contain bimetallic strips, use the fact that
(a)Solids expand less than liquids
(b)Different metals expand at different rates
(c)Gases expand more than liquids
(d)Heating results in change of state.

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PASSAGE - 2

Water occupies a very large area of the Earth's surface and is also found underground. Some amount of water exists in the form of water vapour in the atmosphere. Water covers 71% of the Earth's surface. It is vital for all known forms of life. On Earth, 96.5% of the planet's water is found in seas and oceans, 1.7% in groundwater, 1.7% in glaciers and the ice caps of Antarctica and Greenland, a small fraction in other large water bodies, and 0.001% in the air, as vapour, clouds (formed of solid and liquid water particles suspended in air), and precipitation. Only 2.5% of the Earth's water is freshwater, and 98.8% of that water is in ice and groundwater.

Water pollution is the contamination of water bodies (eg. lakes, rivers, oceans, and groundwater). Water pollution occurs when pollutants are directly or indirectly discharged into water bodies without adequate treatment to remove harmful compounds. Sources of surface water pollution are generally grouped into two categories based on their origin. Point source water pollution refers to contaminants that enter a waterway from a single identifiable source such as a pipe or a ditch. Non point source of water pollution refers to diffuse contamination that does not originate from a single discrete source.

1. Major amount of water on earth is found
 - (a) In glaciers
 - (b) In seas and oceans
 - (c) As ground water
 - (d) In ponds and lakes.
2. Even though 2.5% of Earth's water is fresh water, major part of it is not directly available for our use because
 - (a) We do not make efforts to use it
 - (b) It is in the form of ice and is seen as ground water
 - (c) We are not aware of its availability
 - (d) It is not potable.
3. Discharge of pollutants from a factory into a river can be considered as an example of
 - (a) Point source of pollution
 - (b) Non point source of pollution
 - (c) Both a and b
 - (d) Neither a nor b.
4. Seema gets 150 liters of water every day for domestic use. She successfully saves 25% of it every day. What will be the total amount of water that she will be able to save in a week?
 - (a) 250.5 litres
 - (b) 262.5 litres
 - (c) 216.5 litres
 - (d) 235.5 litres

PSA - ANSWER KEY

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ANS.1.OPTION (d) 1mark

One Calorie=4.185J

50Calories=50x4.185j=209.25J

ANS.2.OPTION (c) Gases expands more than solids and liquids. 1mark

Ans.3.OPTION (b) 1mark

373K-273=100 °C.

Ans4.OPTION (b) Different metals expand at different rates. 1mark

PASSAGE - 2

ANS.1.OPTION (b) Seas and oceans. 1mark

ANS2. OPTION (b) 98.8%of that water is in ice and ground water. 1mark

ANS.3.OPTION (a)

Point source of pollution as it is from a single definite source. 1mark

ANS4.OPTION (b) 1 mark

150litres x25/100=37.5litres

37.5x7days=262.5litres.