MOTION

- A body is said to be in motion if it changes its position with respect to a reference point.
- Motion and rest are relative terms for eg. If A and B are sitting in a moving car and a third person C is standing outside than A and B are at rest w.r.t. each other but in motion w.r.t. C.
- Speed is defined as distance travelled per unit time i.e. speed = distance/time
- Uniform motion – A body is said to have uniform motion if it moves with constant speed in same direction.
- Non uniform motion – A body is said to have non uniform motion if either speed or direction of the moving body changes.
- Average speed = total distance travelled /total time taken
(for non uniform motion)
-S.I unit of speed is m/s.
- Speed = distance/time
- Distance = speed x time
- Time = distance / speed

MEASUREMENT OF TIME-

- All of the clocks make use of some periodic motion. One of the most well known periodic motions is that of a simple pendulum.
- The to and fro motion of a simple pendulum is an example of oscillatory motion which is a periodic motion.
- The time taken by a pendulum to complete one oscillation is called its time period.
- The basic unit of time is second.

ASSIGNMENT

Q1 Define motion.
Q2 Is the movement of the earth around sun uniform or non uniform motion? Explain.
Q3 In which form of motion average speed is equal to the actual speed?
Q4 Classify the following as motion along a straight line, circular or oscillatory-
a) hands of an athlete in a race
b) pedals of a bicycle in motion
c) motion of a swing
d) motion of a merry go round
e) motion of a freely falling body
Q5 Differentiate between uniform and non uniform motion.
Q6 What is measured by an odometer and a speedometer in a vehicle?
Q7 What are quartz clocks?
Q8 Convert (a) 36 Km/hr to m/s
(b) 5 m/s to Km/hr
Q9 A boy cycles down from his house to his school at a speed of 18Km/hr and reaches there in 20 minutes. How far is the school from his house?
Q10 A man covers a total distance of 750 Km in his car with an average speed of 50 Km/hr. How much time does he take?
Q11 A body covers a distance of 20 Km in 20 minutes. Calculate its speed in Km/hr and m/s.
Q12 A simple pendulum completes 40 oscillations in 20 seconds. What is the time period of the pendulum?

Q13 Draw the distance – time graph for a body which moves at a speed of 2m/s for first five seconds than stays at rest for next 2 seconds and again move at a speed of 2m/s for next 3 seconds.

HEAT – ASSIGNMENT

Q1 Define heat. Write its S.I unit.
Q2 Define temperature. Write its S.I unit.
Q3 which form of energy is gained by the molecules of a substance on heating?
Q4 Differentiate between
(a) heat and temperature
(b) lab and clinical thermometer
(c) Conduction, convection and radiation
Q5 Can we use a lab thermometer for measuring our body temperature? Give reasons for your answer.
Q6 Why is there a kink in the capillary tube of a clinical thermometer?
Q7 Give reasons—
(a) Ice is wrapped in a woolen cloth to prevent it from melting.
(b) A metal tea pot is provided with a wooden handle.
© It saves fuel if we cook food in a vessel which is blackened at the bottom and polished from sides.
(d) We prefer two blankets joined together than a single thick blanket on a cold winter night.
(e) Coastal areas have moderate climate.
(f) Ventilators in the houses are provided at the top.
Q8 If we touch a piece of ice , our hand feels cold. Why?
Q9 Two similar beakers containing equal volumes of hot water are placed on a bench. The outer surface of one beaker is painted with shiny white paint and the other with dull black paint. Which of them will cool down faster?
Q10 Give one example each of transfer of heat by (a) conduction (b) convection (c) radiation
Q11 Pick out the good and bad conductor of heat from this list ---- copper , mercury,leather,wool,air,water,iron,brick,straw,card board,.brass,plastic,stainless steel .
Q12 Explain the process by which a container filled with water gets heated.
Q13 Give any four reasons for using mercury in a thermometer.