

SUMMER VACATIONS ASSIGNMENT

SUBJECT – PHYSICS

CLASS - 9

- 1) Under what condition is the magnitude of average velocity of an object equal to its average speed?
- 2) What does odometer of an automobile measure?
- 3) What can you say about the motion of an object whose displacement- time graph is a straight line parallel to the time axis?
- 4) A body thrown in vertically upward direction rises up to a height h and comes back to the position of start. Calculate the total distance travelled by the body and its displacement.
- 5) What is the acceleration of a body moving with uniform velocity?
- 6) A body can have zero average velocity but not zero average speed. Justify.
- 7) A train 100m long is moving with a velocity of 60km/h. Find the time it takes to cross the bridge 1km long.
- 8) A body covers a semicircle of radius 7cm in 5second. Find its velocity.
- 9) Ahmed is moving in his car with a speed of 45km/h. How much distance will he cover in (i) one minute and (ii) one second?
- 10) It takes 6 minutes for the signal sent by an artificial satellite orbiting around the earth to reach the ground station. Calculate the distance of the artificial satellite from the ground station. The signal travels with the speed of light. (3×10^8 m/s).
- 11) If a cheetah spots his prey at a distance of 100m, what is the minimum time it will take to get its prey if the average velocity attained by it is 90km/h?
- 12) The average time taken by a normal person to react to an emergency in one- fifteenth of a second called the reaction time. If a bus is moving with a velocity of 60km/h and its driver sees a child running across the road, how much distance would the bus have moved before he could apply the brakes? The reaction time of people increases when they are intoxicated. How much distance had the bus moved if the reaction time of the driver were $\frac{1}{2}$ s under the influence of alcohol?
- 13) Draw a velocity versus time graph of a stone thrown vertically upwards and then coming downwards after attaining the maximum height.
- 14) A cyclist goes around a circular track of diameter 105m in 5minutes. Calculate his speed and velocity at the end of 7minutes30seconds.
- 15) A girl drove to a hospital from her home and noted the odometer reading of her car increased by 12 km. The trip took 18 minutes. (i) What was her average speed? (ii) If she returned home by the same path 7h30min after she left, what was her average speed and velocity for the entire trip?

- 16) An electron moving with the velocity of 5×10^4 m/s enters into a uniform electric field and acquires a uniform acceleration of 10^4 m/s² in the direction of its initial motion.
- Calculate the time taken in which the electron would acquire a velocity double of its initial velocity.
 - How much distance the electron would cover in this time?
- 17) Obtain a relation for the distance travelled by an object moving with a uniform acceleration in the interval between 4th and 5th seconds.
- 18) A bus starts from rest and moves with a uniform acceleration of 1 m/s² for 5 minutes. Calculate (i) the speed acquired and (ii) the distance travelled by the bus.
- 19) A train starts from rest and accelerates uniformly at 10 m/s² for 1 minute. Find (i) the velocity and (ii) the distance travelled by the train at the end of 1 minute.
- 20) A stone is dropped down a deep well from rest. The well is 50 metre deep. How long will it take to reach the bottom of the well? Given $a = 9.8$ m/s².

ACTIVITY PLAN FOR THE CHAPTER : MOTION

To understand that the displacement of an object is less than the distance travelled by the object. – A Students will go from one corner of their Living room to the opposite corner by different routes possible . They will measure the distance travelled with a measuring tape. Now students will measure the length of diagonal of the living room and note their observations. They can try same in other rooms also .