DAV SCHOOL, DHURWA
SECTOR – III: RANCHI – 4
SUMMER ASSIGNMENT – 2020-21
Subject: Physics
CLASS – IX

I. Define the following with examples:-
   a. Scalar and Vector Quantities
   b. Distance and Displacement
   c. Speed and Average Speed
   d. Velocity and Average Velocity
   e. Acceleration
   f. Uniform and Non- Uniform Acceleration
   g. Circular Motion

II. Using Velocity time graph, derive :
   a) $V = u + at$
   b) $S = ut + ½ at^2$
   c) $V^2 – U^2 = 2as$

III. Differentiate between (at least three differences)
   a. Liner motion and Circular motion
   b. Speed and Velocity
   c. Distance and Displacement
   d. Scalar and Vector

IV. Solve these numerical:
   a. A driver applies the brakes and slows down the velocity of the bus from 80km h^{-1} to 60 km h^{-1} in 5s. Calculate the acceleration of the bus?
   b. A bus starts from rest and attains a speed of 36km h^{-1} in 10 minutes while moving with uniform acceleration of the bus. Calculate the uniform acceleration of the bus?

c. A car starts from rest and attains a velocity of 10m s^{-1} in 40s. The driver applies brakes and slows down the car to 5m s^{-1} in 10s. Find the acceleration of the car in both the cases.
d. An Athlete completes one round of a circular track of diameter200m in 40s. What will be the distance covered and the displacement at the end of 2 minute 20s?
e. Joseph jogs from one end A to the other end B of a straight 300m road in 2 minutes 30 seconds and then turns around and jogs 100m back to point C in another 1 minutes. What are the Joseph's average speeds and velocities in jogging (a) from A to B and (b) from A to C?
f. Abdul, while driving to school, computes the average speed for his trip to be
   20km $h^{-1.}$ On his return trip along the same route, there is less traffic and the average speed is 30km h^{-1}. What is the average speed of Abdul's trip?
g. A Motorboat starting from rest on a lake accelerates in a straight line at a constant rate of 3.0 m s^{-2} for 8.0 s. How far does the boat travel during this time?
h. A driver of a car travelling at 52km h^{-1} applies the brakes and accelerates uniformly in the opposite direction. The car stops in 5s. Another driver going at 3km h^{-1} in another car applies his brakes slowly and stops in 10 s. On the same graph paper, plot the speed versus time graphs for the two cars. Which of the two cars travelled farther after the brakes were applied?