

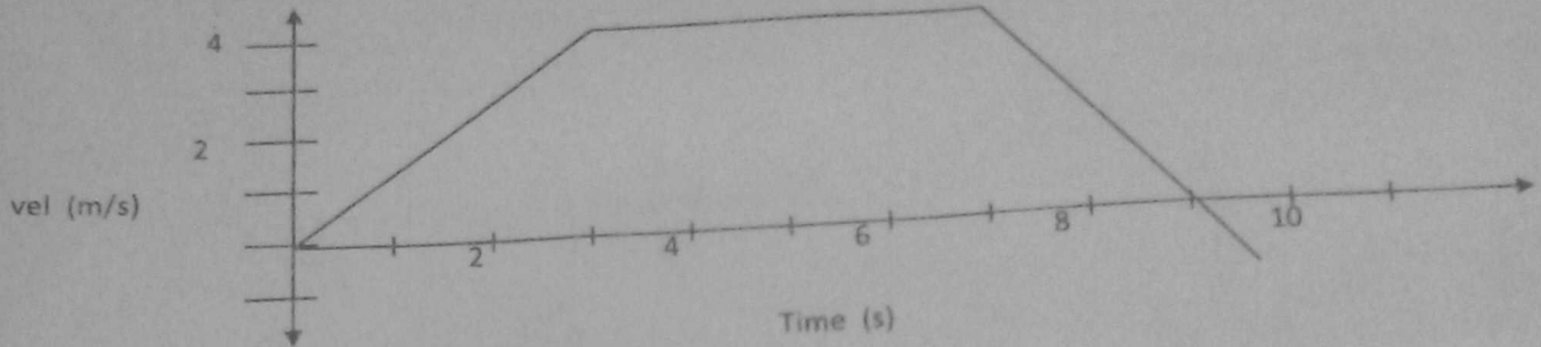
# KARAI MIXED DAY SEC SCH

NAME: \_\_\_\_\_ ADM NO. \_\_\_\_\_ F3 \_\_\_\_\_

PHY F3 CAT TERM 1, 2018

INSTRUCTION; Attempt all questions in the spaces provided.

1. An object is at the origin at time  $t=0$  in the figure below



a) Describe the motion in

i) The first leg

ii) The second leg

iii) The third leg (1 mk each)

b) Find the displacement from the origin at the following times

i)  $T = 3$  sec (1 mk)

ii)  $T = 7 \text{ sec}$  (2 mks)

iii)  $T = 9 \text{ sec}$  (2 mks)

iv)  $t = 10 \text{ sec}$  (2 mks)

c) Find the total Distance travelled (2 mks)

2. A girl throws a ball vertically upwards with an initial velocity of  $10\text{m/s}$ . Calculate

i) maximum height

ii) Total time taken to receive the ball back.

iii) Velocity on receiving the ball (6 mks)

3. i) State the Newton's Third law of motion (1 mk)

ii) What is a one Newton? (1 mk)

4. A cricket ball of mass  $0.1 \text{ kg}$  is bowled at  $30 \text{ m/s}$ . The batsman hits it straight back towards the bowler at  $40 \text{ m/s}$ . Calculate the balls

a) i) Initial momentum (1 mk)

ii) Final momentum (1 mk)

iii) change in momentum (1 mk)

b) If the ball is in contact with the bat for  $0.01$  seconds, find the average force of the bat on the ball (2 mks)

5. List the forces involved in a body moving in fluids (3 mks)

6. On the same diagram sketch a velocity – time graph for an open and a closed parachute falling in air (2 mks)