

**GATITU GIRLS SECONDARY SCHOOL  
MID TERM PHYSICS EXAM FORM3 TERM1 2015**

**NAME.....ADMNO.....**

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**Q1. Define the following terms:**

a) velocity.

b) acceleration.

c) average velocity.

**3mks**

**Q2. A car moves with a speed of 108km/h for 30minutes, then climbs a hill with a speed of 60km/h for another 30minutes. Determine the average speed of the car in m/s.**

**3mks**

**Q3. A body moves 60m due north in 2 seconds, then 80m due west in 6 seconds. Determine;**

a) the total distance moved by the body.

**1mks**

b) the average speed of the body.

**2mks**

c) displacement of the body.

**3mks**

d) the velocity and the direction of the velocity.

4mks

Q4. sketch the following motion graphs;

A) Distance time graph for,

i) stationary body

2mks

ii) Body moving with a uniform speed.

2mks

b) Speed –time graph for;

i) Stationary body

ii) Body moving with a uniform speed.

iii) Body moving with a variable speed.

6mks

Q5. A car decelerates uniformly from a velocity of 10m/s to rest in 4 seconds. If it takes 4 seconds to reverse to its original position with a uniform acceleration, sketch a velocity-time graph for the motion.

2 mks

b) using the above graph, determine the;

i) Displacement of the car.

2mks

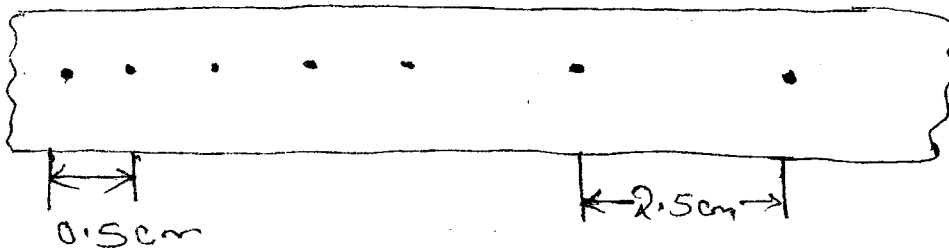
ii) Average velocity of the car.

iii) Distance travelled by the car.

iv) Average speed of the car.

8mks

Q6. The figure below shows a part of a tape pulled through a ticker timer by a trolley moving down on an inclined plane. If the frequency of the ticker timer is 50Hz, calculate the acceleration of the tape.



4mks

Q7. A bullet shot vertically upwards rises a maximum height of 1000m. determine

a) Initial velocity of the bullet.

3mks

b) the time of the flight.

2mks

**Q8.** A stone is thrown horizontally from the top a building at a velocity of 10m/s, and hits the ground below after 10 seconds. Determine;

a) The height of the roof.

3mks

b) the horizontal velocity after 10 seconds

1mk

c) how far from the building will the stone land on the ground?

2mks

**Q8.** A student performed an experiment to determine acceleration due to gravity by timing an oscillating pendulum and obtained the results below.

length of pendulum L (m)	0.2	0.3	0.4	0.5	0.6	0.7	0.8
time for 20 cycles t (s)	17.8	21.8	25.1	28.1	30.8	33.2	35.5
periodic time T(s)							
$T^2(s^2)$							

a) complete the table by finding periodic time (T) and hence  $T^2(s^2)$ .

4mks

b) plot a graph of  $T^2$  against L (m).

5mks

c) determine the slope k from your graph.

3mks

d) given that  $T^2 = 4\frac{\pi^2}{g} L$ , where g is gravitational acceleration use your graph or other wise to find "g" 3mks.

e) list down two precautions you would take during this experiment to ensure accurate results. 2mks

Q10. A car travelling at a high speed feels lighter. Explain.  
2mks

b) it is dangerous to stand close to a railway line on which fast moving train is passing. 2mks

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Success