**FORM 4 TERM 2**

**PHYSICS PAPER 1**

**Marking scheme**

1. \* Error 0.47mm

Thickness = 1.30mm-0.47mm

=0.83mm

1. \* W = Mg

=PxVxG

=13600x(2.4x4x6) x 10- x10

= 7.834N

1. \*. When pressed, pressure increases or is high thus pain , when the stone is placed without pressing, pressure I slow thus less pain.
2. \* To lower the position of 60g of the bus thus increasing stability
3. 50x46 = m x 23

M = 50x46

23

M = 100g

1. \*. Opening and closing door
2. Steering wheels
3. Water taps
4. Bicycle handle bars
5. Sprinklers
6. Spanners
7. \* Level of water decreases in limb B and rises in Limb A

b. air in Z is heated faster than in Y. this is because dull surfaces are good better emitters of radiant heat. Expanded air pushes the level of water in lim B downwards raising the level in limb A

1. …
2. \*. Fast moving vehicles , increase the velocity of air between the vehicle and trees, this reduces pressure in between. Excess outside pressure pushes the trees towards the road making them bend.
3. \* Mass of solid = 5.5 x 0.8

=4.4g

Volume of solid = 20cm3

Density of solid = 4.4

20

= 0.22g/cm3

1. \* Smoke particles were seen to move in random motion ( brownian motion)
2. \* Chemical energy – kinetic energy – sound and heat energy
3. \* - Up thrust force

* Weight
* Viscous drag

1. \*. Energy can neither be created nor destroyed but can only be changed from one form to another.

(ii) a thick screw driver has a greater turning effect than a thin one.

b. total work done = area under the graph

= (200x20) + (600x20) + (1/2 x 10x 400) + (1/2 x (20+10) x 400)

= 4000+12000+2000+6000

= 24000J

(ii) Power = force x velocity

= 600 x 0.6

=360W

c. efficiency = 3.6x10x 400

(3.6 x 10x400) +200000

= 99.86%

1. "\* Increasing the radius of the circular path

Increasing the angular velocity

B,

1. Tension in the string
2. Shown/ indicated in the diagram( towards the Centre of the circular path).
3. M = 0.5 kg F = MV2

V = 8 m/s r

R = 2 m = 0.5x82

2

F = 16N

Reading of the balance = tension m the string = centripetal force = 16N

V. U= √2gh

=√2X10X100

U = 44.72m/s

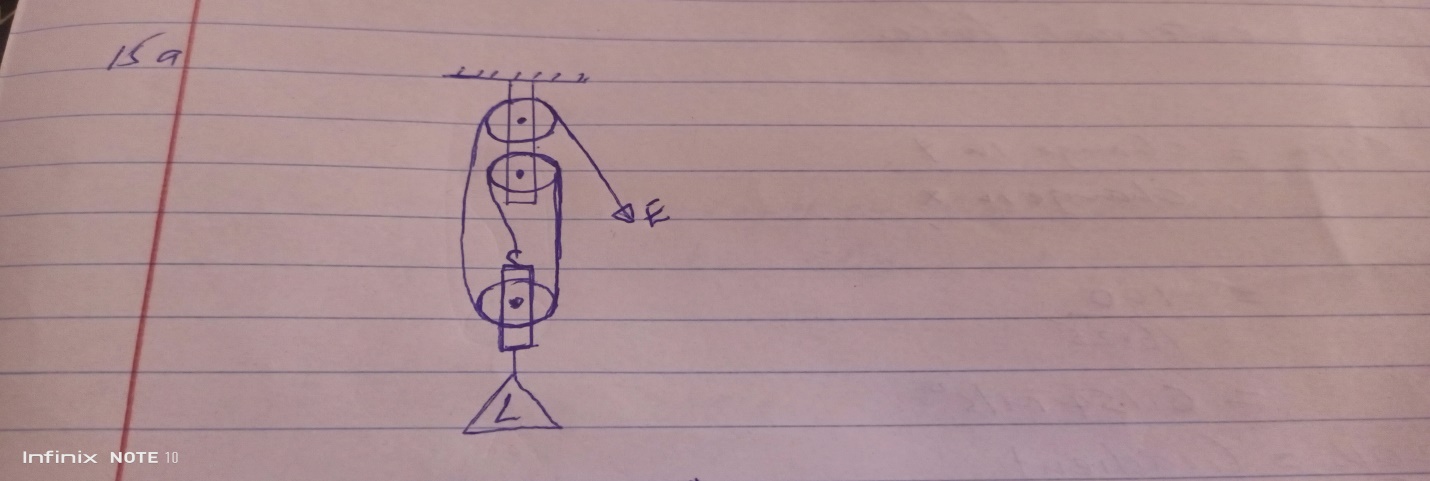
1. V= u-gt

0 =44.72 - 10t

T = 2t

=2x4.472

T= 8.944(s)

15(a) 

1. M.A = V.R x 80/100

M.a = 3x80/100

M.a = 2.4

1. M.A = L/E

2.4 = 4.8/E

E= 2N

1. Work done by effort = effort x distance
2. = 2 x 70x3 =4.2J

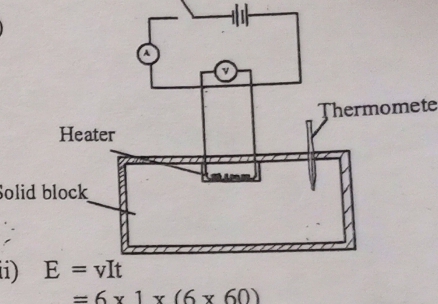
100

Wasted energy = 4.2 – ( 4.8X70/100)

= 4.2J – 3.36j

= 0.84J

16…\*. .(a)Heat capacity is heat energy required to change the temperature of a substance by 1 Kelvin



(b)

(ii) E = vIt

=6x1x(6x60)

=2160Joules

(iii) MCO = VIt

C = VIt/MO =2160/0.75x(24-20)

= 2160/0.75x4

= 720Jkg-1K-1 (c) Q. = CO

=8X(26-20)

=504Joules

17.\* A body remains in its state of rest or uniform motion in a straight line unless acted upon by an external force.

* + 1. Slope = change in Y

change in x

= 100

16.25

= 6.154m/s2

* + 1. 20K = gradient

K = 6.154

20

K = 0.307 m/s2

* + 1. M = 800KG

U = 0M/s

a= 0.12M/S2

S=D = 400M

V = 4+29 s

V = 0+2x 0.12 x 400

V = 960m/s

Momentum = mass x velocity

= 800 x 96

= 76800kg m/s