SUNRISE ONE

232/1 PHYSICS PAPER 1

PRE-MOCK 2023 MARKING SCHEME

SECTION A

1. Main scale reading = 3.20 cm

Vernier scale reading = 0.05 cm ✓1 for both readings

Reading on the scale = 3.25 cm. ✓1

1. Match sticks moves away from each other ✓1

Soap solution weakens surfaces tension in between hence stronger force on pulls them outwards ✓1

1. P=F∆V✓ =3.5×(6.0-3.5) = 8.75W✓
2. 











1. Neutral

Unstable

 ; award for time

 formula/sub and the correct answer with units

1. Higher boiling point so it can measure higher temperature than alcohol;
* Angle of inclination of the plane
* Vertical Height of the inclined plane
* Length of the plane
* Frictional force between the plane and the body

Maximum of two marks but consider only the first two responses of the learner

1. Pressure is developed at the point of application of the force. 🗸1Since the liquid is incompressible, pressure is uniformly transmitted and force is generated.🗸1
2. Hydraulic machines (brakes, press,lift)🗸1
3. F=

 🗸1

 V=4.00m/s🗸1

1. e=4.25-4.00=0.25m

F=Ke

75=0.25k🗸1

K=300N/m🗸1

SECTION B

1. (a)



 (b) (i) V.R =Number of the ropes supporting the load = 6

(ii)

* Efficiency of the pulley system.

(iii) Wasted effort=

 Wasted effort = Weight of lower block +Frictional Force

 Weight of lower block =50.04-3.6N=46.44N

(c) Load

(d)

* Impurities;
* Pressure;
1. 800C ;
2. ;

 ;

Change in temperature = oC ;

Heat energy absorbed = ;formula or substitution

J/kg K ; correct answer with units

Heat energy supplied by the heater = heat energy spent to vaporize the liquid ;

 ; ; correct substitutions for both energy supplied and absorbed

J/kg ; correct answer with correct units

1. The temperature at which the volume/ pressure/K.E of a gas is assumed to be zero.🗸1
2. Reducing the volume increases the number of collisions of gas particles with the walls of the container per unit time.🗸1Therefore the rate of change of momentum will also increase leading an increase in pressure.🗸1
3. I-Serves as a pointer to the volume on scale or

 - To trap the gas in the tube or

-A drying agent for the gas🗸1

II-To make the temperature of the bath uniform.🗸1

1. Heat the bath and record the temperature and height/volume of air trapped at suitable temperature interval.🗸1 Plot a graph of volume/height against temperature.🗸1 The graph is a straight line indicating proportional change in volume and temperature.🗸1
2. See sketch on grid.

**T**

Volume (cm3)

Temperature (0C)

* Correct position of T and dotted line
* Correct continuous line
1. P1V1=P2V2

🗸1

X=🗸1

A floating body displaces its own weight of fluid in which it floats;



A **bulb ;**

B **lead-shots ;**

1. See above for labelling

1. It enables the hydrometer float upright ;
2. Using a narrower glass-stem ;

Float the hydrometer in a liquid of known relative density and mark level of the liquid on the stem;

Float the hydrometer again in another liquid of known relative density and mark its level on the stem;

Divide the length between the marks into equal divisions and label it accordingly ;

1. 
* **Tension ;**
* **Up-thrust ;**
* **Weight ;**

Figure 9

* Tension increases ;
* Up-thrust increases ;

weight remains constant

1. (i) collision where only linear Momentum is conserved and bodies moves together after collision (coelesce).

 (ii) I Momentum before collision = Momentum after collision

 (1600 x 20) + (800 x 0) = (1600 + 800)V

 

 II V = U + at

 ⇒ 13.33 + 15a ⇒ pa = -0.89m/s²

 V² = U² + 2as ⇒

 = 99.83m

 III Impulse tone for minibus

 = 5336N

 Or

 Or for a car

 = 5336N.