KAPSABET HIGH SCHOOL

POST MOCK 2024

PHYSICS

232/1 (THEORY)
PAPER 1
TIME: 2 HOURS

NAME…… SIGN……

INDEX NO…… ADM NO……

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO STUDENTS

(a) *Write your name and adm number in the spaces provided above*

(b) *Attempt **ALL** questions in sections A and B.*

(c) *All your answers must be written in the spaces provided in this question paper.*

(d) *All working must be clearly shown*

(e) *Non programmable silent electronic calculators and KNEC mathematics table may be used except where stated otherwise*

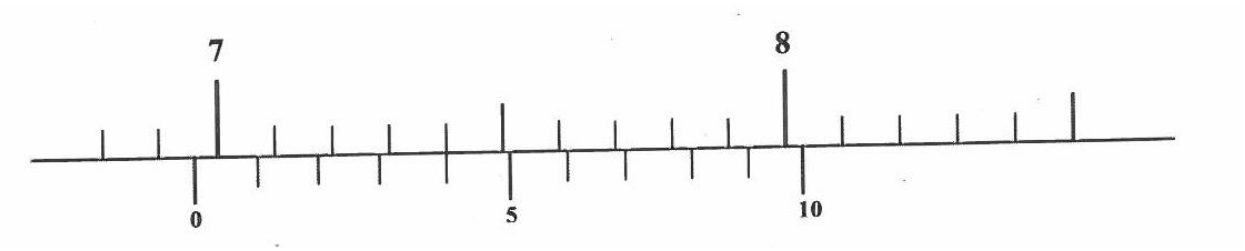
For Examiner's Use Only

Section	Question	Maximum Score	Candidates' Score
A	Q1 – Q12	25	
B	Q13	9	
	Q14	11	
	Q15	9	
	Q16	10	
	Q17	10	
	Q18	6	
		80	

SECTION A (25 MARKS)

Answer all the questions in this section

1. **Figure 1** below shows a scale of vernier calipers when measuring the width of a meter rule.



What is the actual width of the meter rule if the calipers has a zero error of + 0.6mm.?(**2mks)**

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2.A clinical thermometer has a constriction in the bore just above the bulb. State the use of the constriction. **(1mk)**

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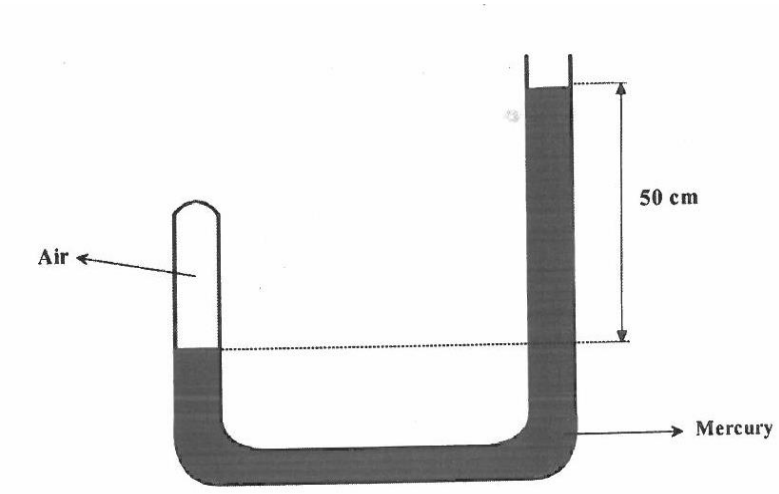
3.Figure 2 below shows air trapped by a column of t6he mercury in a U-tube . The atmospheric pressure is 76 cm Hg.



At what pressure in mmHg is the enclosed air? **(3mks)**

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4.A girl of mass 50 Kg runs up a flight of height 4m in 4 seconds . Calculate the power she developed in this time **(2mks)**

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5. Name the transducer in the following energy conversions.

i). Kinetic to electrical **(1mk)**

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ii). Solar to heat **(1mk)**

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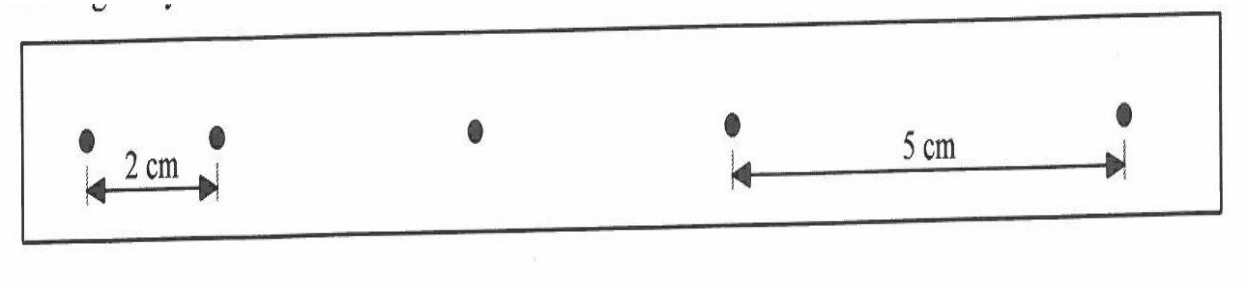
6.Figure 3 below shows dots produced on a tape pulled through a ticker timer by a moving body .



The frequency of the ticker –timer is 50 Hz. Calculate the acceleration of the body. **(3mks)**

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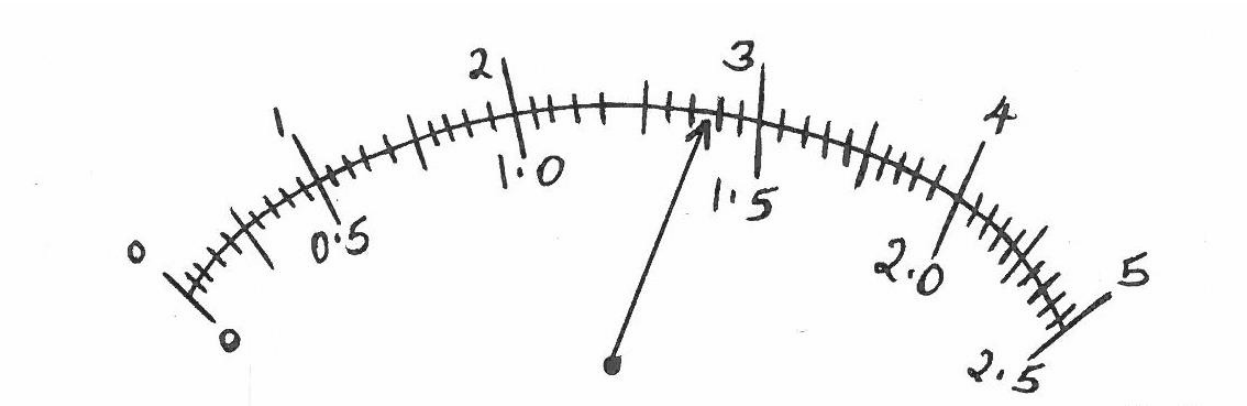
7.Figure 4 below shows an ammeter used to measure current through the conductor .The student used the lower scale.



State the reading from the meter **(1mk)**

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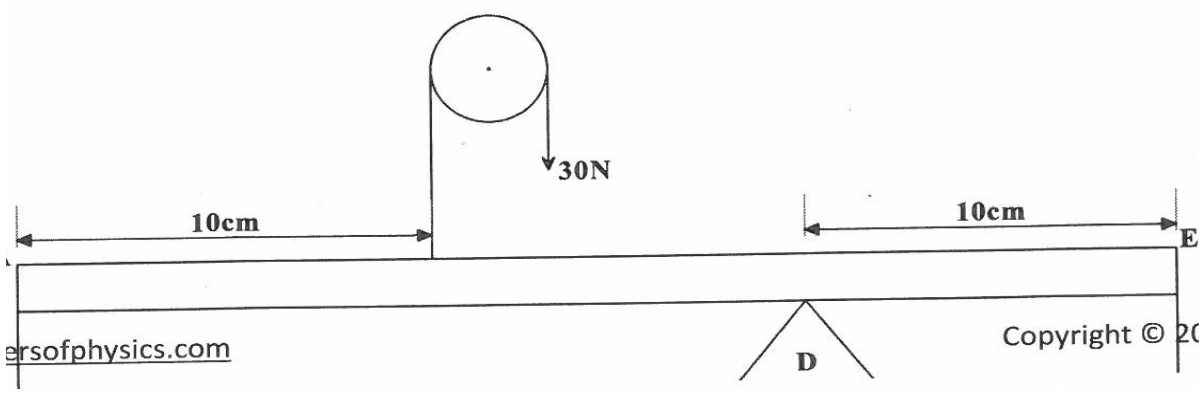
8. Figure 5 below shows a uniform rode AE which is 40 cm long. It has a mass of 2Kg and pivoted at D. If 2N is acting at point E , and 30N force is passed through a frictionless pulley



Find the force X acting at end A. **(3Mks)**

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9. Convert -200°C into Kelvins **(1mk)**

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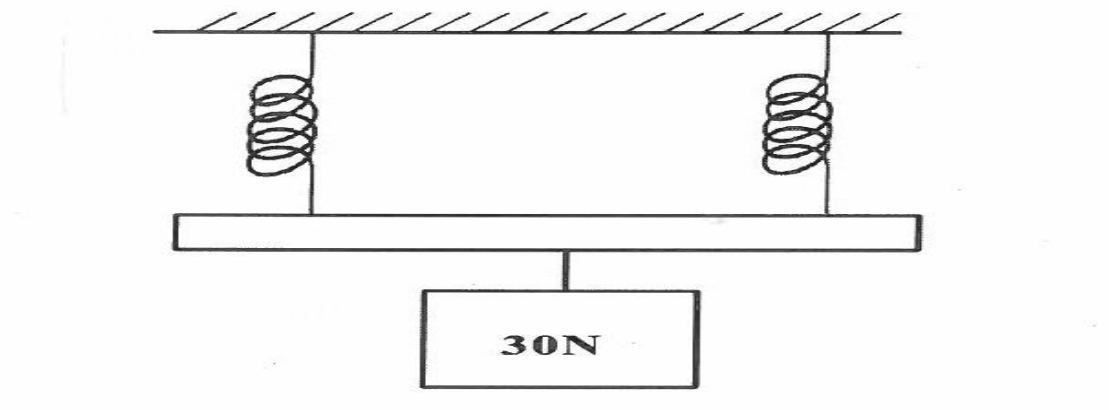
10.Figure 6 below shows two identical springs constant 3N/cm supporting a load of 30N.



Determine the extension of each spring **(3mks)**

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11. Explain why a bus should not carry standing passengers. **(1mk)**

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12. State TWO reasons mercury is preferred as a barometric liquid and not water . **(2mks)**

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SECTION B (55MARKS)

Answer all questions in this section

13. a) Define the term efficiency as used in machines . **(1mk)**

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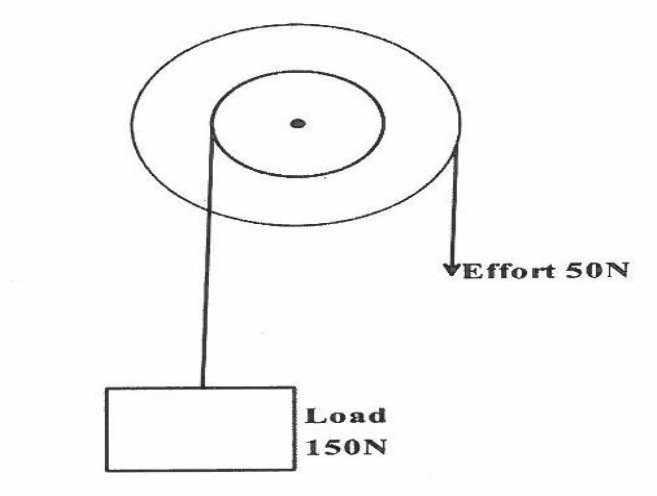
b) Figure 7 below shows the cross –section of a wheel and axle of radius 6.5 cm and 1.5 cm respectively used to lift a load. Use it to answer the question that follow.



Determine the

i. Mechanical advantages (M.A) of the system **(2mks)**

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ii. Velocity ratio (V.R) of the system **(2mks)**

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iii. Efficiency of the machine **(2mks)**

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iv. Give one reason why the above machine is not 100% efficient **(1mk)**

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c) State the law of conservation of energy **(1mk)**

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14. (a) In inelastic collision , kinetic Energy is lost .Explain . **(1mk)**

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(b). A Trailer of mass 30 tonnes travelling at a velocity of Km/ her rams onto a stationery bus of mass 10 tonnes . The two move together after impact. Determine the common velocity at which they move after impact**.** **(3 Mks)**

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(c) A stone is thrown vertically upward with an initial velocity of 30 M/s

i. Determine the maximum height reached. **(2mks)**

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ii. Time taken to come back to the point of projection **(2mks)**

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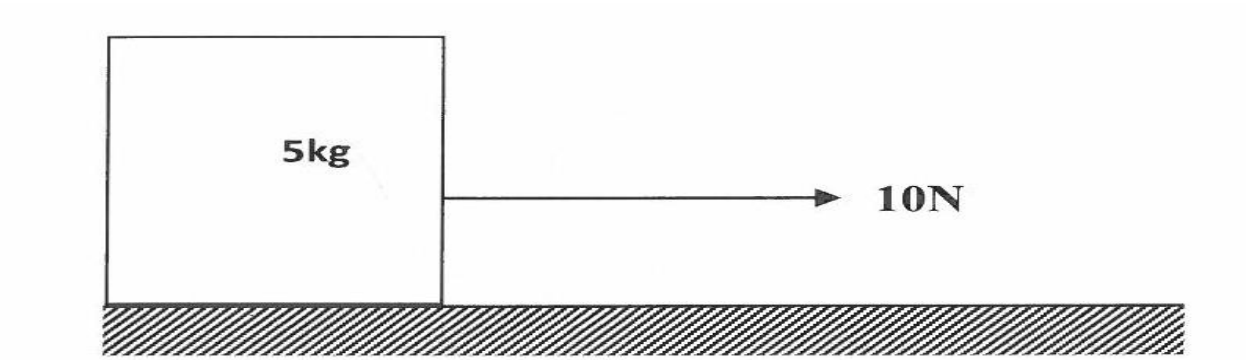
(d) The figure 6 below shows a body being pulled by a constant force of 10N for 4m over wooden surface . The co- efficient of friction is o.03.



Find the acceleration of the body **(3mks)**

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15. (a) State Hooke's law **(1mk)**

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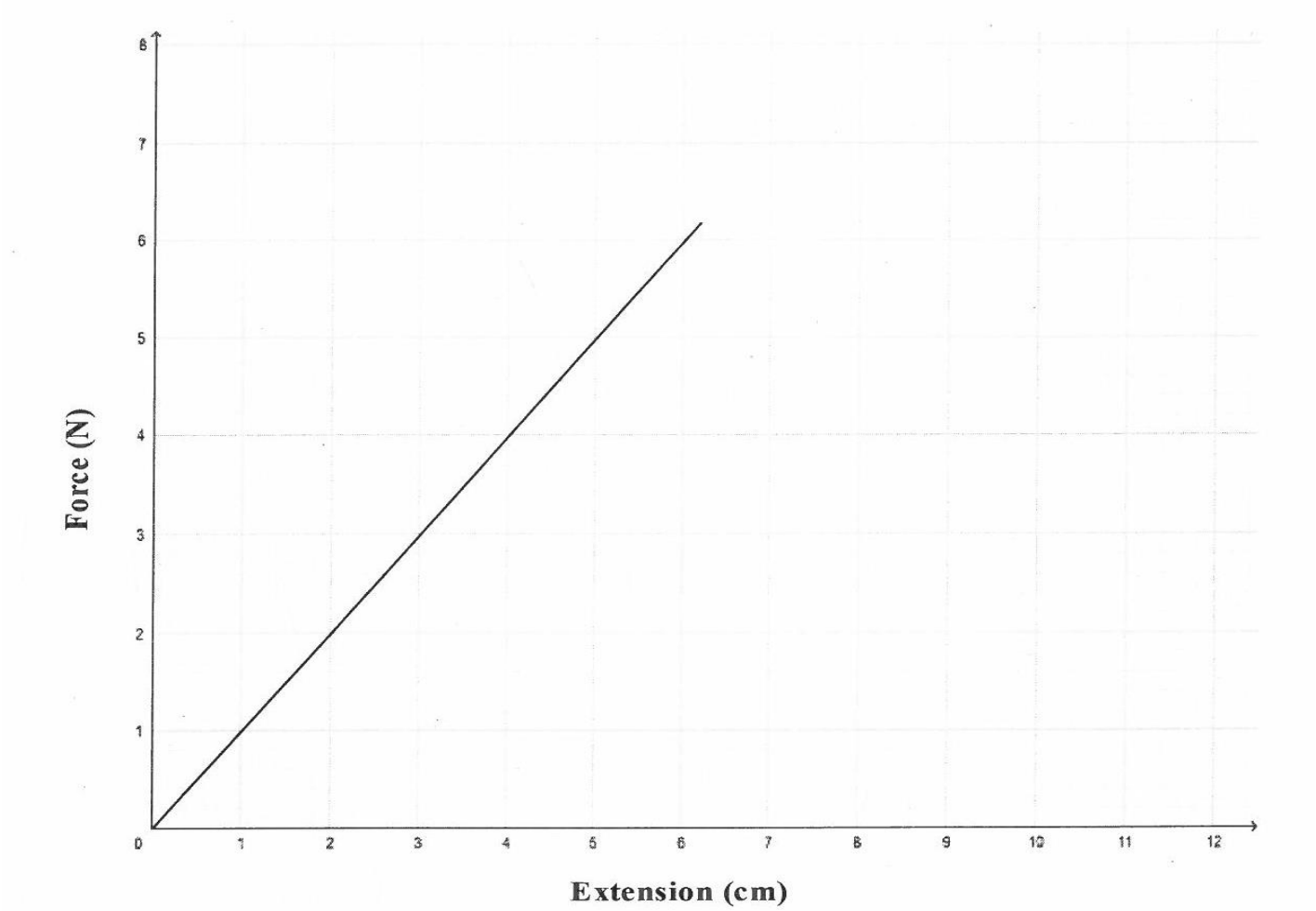
(b) A graph of force (y-axis) against (x-axis) is provided. Use it to answer questions below.



From the graph determine;

i). Work done in stretching the spring by 3cm. **(3mks)**

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ii). Spring constant .Give your answer in SI Units. **(3mks)**

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iii). State **two** factors that affect the spring constant. **(2mks)**

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16. (a) Give reason why ink is likely to ooze a pen when one is up in an airplane.

(1mk)

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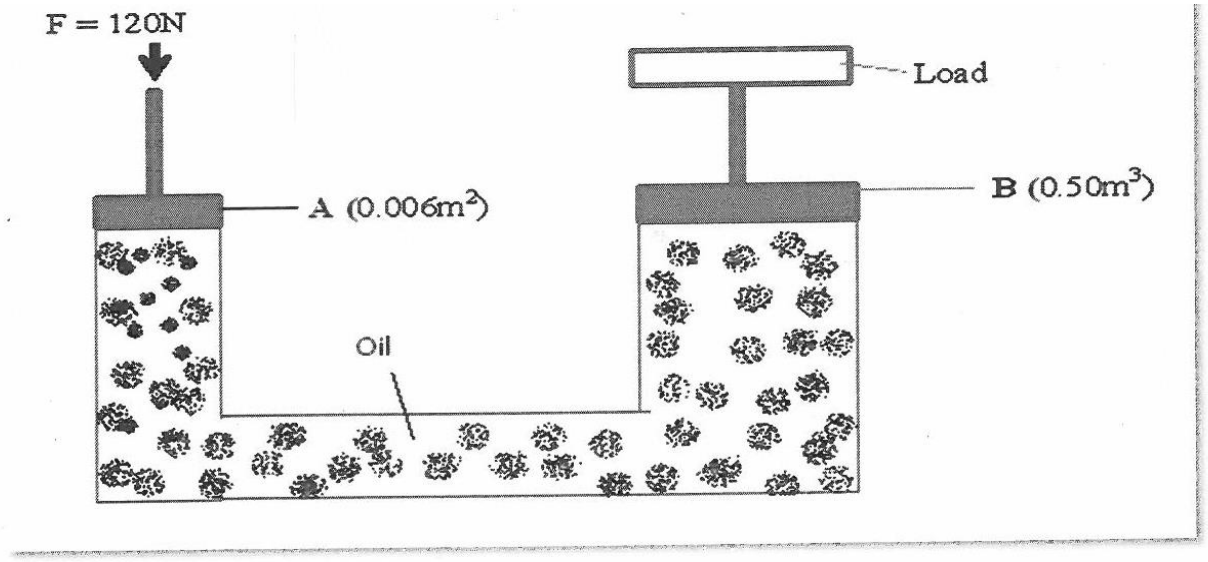
(b) The figure below is a simple hydraulic machine used to raise heavy loads.



Calculate;

i. The pressure exerted on the oil by the force applied at **A** **(2mks)**

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ii. The load raised at B **(2mks)**

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iii. Give two properties which make the oil suitable for use in this machine . **(2mks)**

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(c) The barometer reading at the base of the mountain is 60cm/ Hg while at the top is 50 cm/Hg. If the densities of air and mercury are 1.25kgm-3 and 13,600kgm-3 respectively. Calculate the height of the mountain. **(3mks)**

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17.(a) Distinguish between streamline and turbulent flow. **(2mks)**

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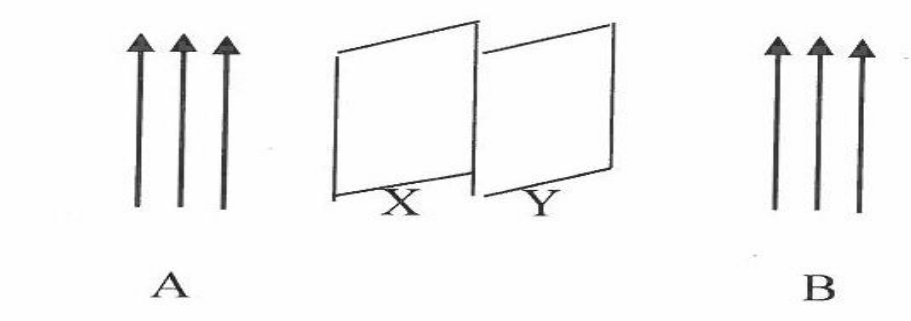
(b)Figure below shows two light sheets of paper arranged as shown



Explain the observation made when air is blown at the same time at point A and B. **(2mks)**

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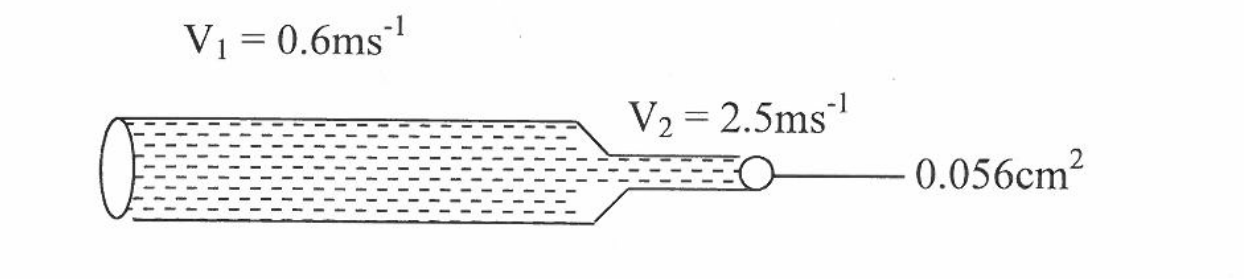
(c) Figure 12 below shows an incompressible fluid moving through a tube of varied cross-section area. If the area of the small tube is 0.05m2, Calculate the area of large tube in cm2. **(3mks)**



(d) State the Bernoulli's principle **(1mks)**

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(e) State any **TWO** assumptions made when deriving the equation of continuity **(2mks)**

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18. a) State the **principal of moments** **(1mk)**

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b) A uniform metal strip is 3.0cm wide, 0.5 cm thick and 100 cm long. The density of the metal is 2.7 g/cm3. Determine

(i) The weight of the Metal strip. **(2mks)**

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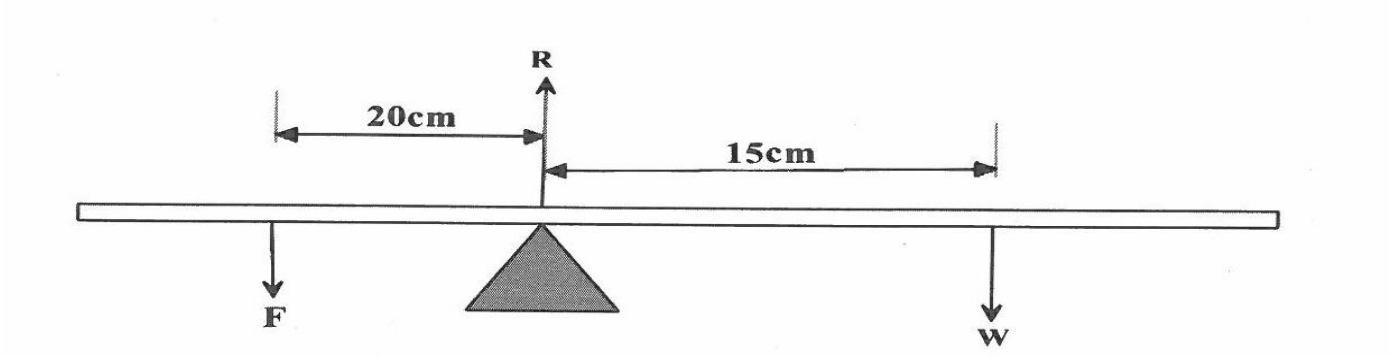
The strip is placed on a pivot and kept in equilibrium by forces in the figure below.



(ii) Determine the value of F . **(3mks)**

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