F1 ENDYEAR ASSIGNMENT

PHYSICS

10+ HOLIDAY ASSESMENT PAPERS

Dear Students, Make Maximum Utilization of limited time Available to Attempt and Work on these Year-Round Examination Trials.

A Comprehensive Evaluation Analysis of Term 1-3 Questions.

SERIES 1

For Marking Schemes

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MWALIMU CONSULTANCY

FORM 1 EXAMINATION TRIALS

PHYSICS

PRACTICE TRIAL 1

TIME: 2 HOURS

NAME…….. ADM NO…….....

SIGN……...……. DATE;……...

QUESTIONS

1. Distinguish between basic and derived quantity. Give **two** examples in each case. **(4mks)**

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2. Complete the table below. **(7mks)**

QUANTITY	SI UNITS	SYMBOL OF SI UNITS
LUMINOUS INTENSITY		
	AMPERE	
		K
	KILOGRAM	
		S
	MOLE	
LENGTH		

3. Explain instances where physics is related with the following. **(4mks)**

a) Biology-

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b) Geography-

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4. A test-tube has a diameter of 3cm. how many turns would a piece of thread of length 90.42cm make round the test tube**.(Take π=22/7) .** **(3mks)**

5. Define the following branches of physics. **(4mks)**

a) Waves-

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b) Mechanics-

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6. a) Draw a burette filled with water to a volume of $28cm^3$. **(2mks)**

b) 60 drops fell from a burette. The first and final readings were 28cm3 and 42cm3 respectively. What is the average volume of one drop. **(3mks)**

7. Differentiate between vector and scalar quantity giving relevant examples in each case. **(4mks)**

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8. Determine the density in SI Units of a solid of mass 40g with dimensions 30cm by 4cm by 3cm. **(4mks)**

9. Define surface tension and state two factors affecting surface tension. **(3mks)**

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10. State **two** major differences between mass and weight. **(4mks)**

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11. 1600cm^3 of fresh water of density 1g/cm3 are mixed with1200cm3 of sea water of density 1.2g/cm3. Determine the density of the mixture. **(4mks)**

12. A body weighs 65N. Calculate it's mass.(**g=10N/Kg)** **(2mks**)

13. Define pressure giving its SI Units. **(2mks)**

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b) State any **two** factors affecting pressure in liquids. **(2mks)**

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14. A block measuring 20cm by 10cm by 5cm rests on a flat surface. The block has a weight of 3N. Determine the maximum pressure it exerts on the surface. **(3mks)**

15.a) Define force and state its SI Units. **(2mks)**

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……

b) Find the resultant of a force 4N and 8N acting at the same point on an object if the forces act in the same direction in the same straight line. **(2mks)**

16. Explain the following observations:

i) Water wets glass surface but does not wet the waxed glass surface. **(2mks)**

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ii) A steel needle placed carefully on the surface of water does not **sink.** **(2mks)**

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iii) A matchstick rubbed at one end with soap starts moving immediately in one direction when placed on the surface of water. **(2mks)**

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iv) The mass of a lump of gold is constant everywhere, but its weight is not. **(1mk)**

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v) Large mercury drops form oval balls on a glass slide. **(2mks)**

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17. A sphere of diameter 6.0cm is moulded into a thin uniform wire of diameter 0.2mm. Calculate the length of the wire in metres. (Take $\pi=22/7$) **(3mks)**

18. An astronaut weighs 900N on earth. On the moon, he weighs 150N.caculate the moons' gravitational strength. **(3mks)**

FORM 1 EXAMINATION TRIALS

PHYSICS

PRACTICE TRIAL 2

TIME: 2 HOURS

NAME…….. ADM NO…….....

SIGN……...……. DATE;……...

QUESTIONS

1. Define physics **(1mk)**

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2. Name two branches of physics **(2mks)**

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3. Give two career opportunities for someone who has done physics up to form four level **(2mks)**

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4. State two laboratory rules **(2mks)**

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5. Define the following quantities of measurements and give their S.I unit

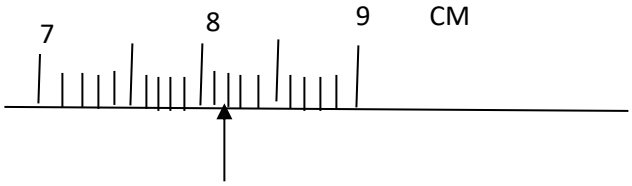
i. Length **(2mks)**

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ii. Volume **(2mks)**

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6. State the reading shown by the arrow below **(1mk)**

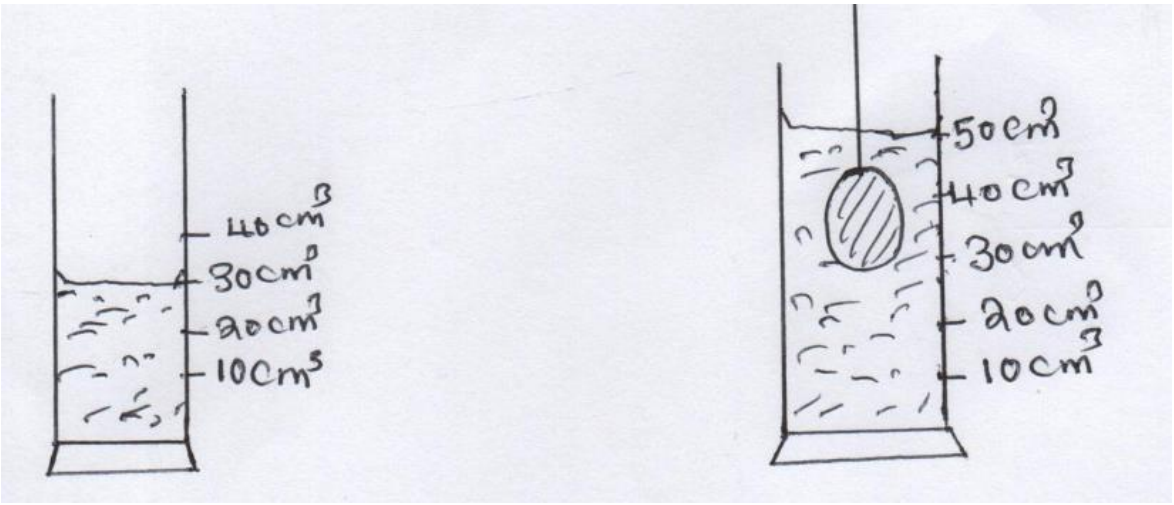


7. A sheet of paper measures 25cm by 15cm. calculate its area in mm^2 **(3mks)**

8. A sphere of diameter 7.0CM is moulded into a thin uniform wire of diameter 0.35cm.

calculate the length of the wire in metres (take $\pi = \frac{22}{7}$) **(4mks)**

9. Use the set up below to answer the questions that follows



a) Find the volume of the stone **(2mks)**

b) Calculate the density of the stone given that it's mass is 250g **(2mks)**

10. A tank measures 20cm long, 10m wide and 2m high. Calculate the mass of water in the tank when it is full. Density of water is 1000kg/m^3 **(3mks)**

11. Give two effects of force **(2mks)**

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12. Describe the following forces **(2mks)**

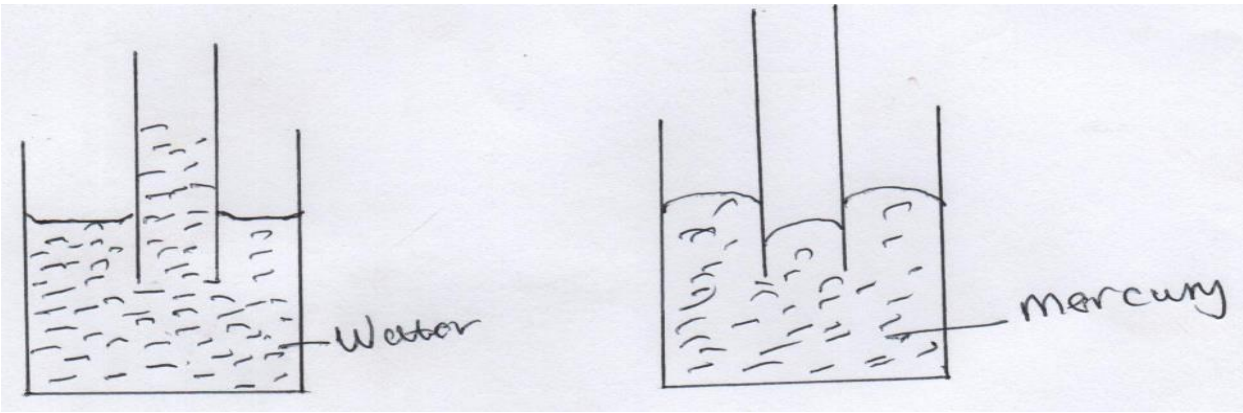
i. Upthrust

---

ii. Tension

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13. The diagram below shows water and mercury in a narrow tube. State the reason why the levels are different **(2mks)**



14. Explain why a steel needle placed carefully on the surface of water does not sink **(2mks)**

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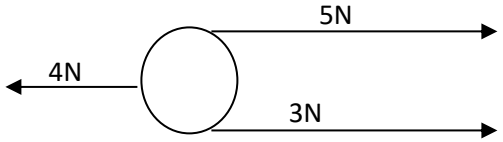
15. Give three differences between mass and weight **(3mks)**

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16. Differentiate between vector and scalar quantities, give one example of each **(3mks)**

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17. Give the resultant force in the following **(2mk)**



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18. Define pressure and give its S.I unit **(2mks)**

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19. The initial reading in a burette containing water is $25cm^3$ twenty drops of water each of average volume $0.25cm^3$ falls from the burette. Find the final burette reading **(3mks)**

20. Name two instruments in a physics laboratory that are used to measure the volume of a liquid **(2mks)**

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21. Explain why it is not suitable to determine the volume of an irregular charcoal using displacement method **(2mks)**

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22. Differentiate between a basic quantity and a derived quantity **(2mks)**

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23. The mass of a book is 250g. calculate its weight given that gravitation strength is 10N/kg **(3mks)**

24. Define force and give its S.I unit **(2mk)**

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25. Give two factors that affect pressure in liquids **(2mks)**

SECTION 11 (40MKS)

ANSWER ALL QUESTIONS

26. The mass of an empty density bottle is 20g. it is 45g when full of water and it weighs 60g when full of liquid X. Calculate

A) Mass of water **(1mk)**

B) Mass of liquid X **(1mk)**

C) Volume of water, given its density is 1g/cm3 **(2mks)**

D) Volume of the bottle **(1mk)**

E) Density of liquid X **(2mks)**

27. You are provided with the following

1. Eureka can

2. A small beaker

3. A stone

4. A measuring cylinder

5. Some water

Describe how you will use the apparatus above to measure the volume of the stone **(5mks)**

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28. A brick 30cm long, 20cm wide and 10cm thick has a mass of 500g. Determine.

a) The weight of the brick **(1mk)**

b) The greatest area occupied by the brick when placed on the ground **(2mks)**

c) The least area occupied by the brick when placed on a flat surface **(2mks)**

d) The maximum pressure exerted by the brick on a flat surface **(2mks)**

e) The least pressure exerted by the brick on a flat surface **(2mks)**

29. In an experiment to estimate the diameter of a cylindrical wire, a thin thread wraps round a cylinder exactly 30 times.

Calculate

a) The circumference of the cylinder if the length of the thread is 50cm. **(2mks)**

b) The radius of the wire **(3mks)**

(take $\pi = \frac{22}{7}$)

30. $100cm^3$ of fresh water of density $1000kg/m^3$ is mixed with $100cm^3$ of sea water of density $1030kg/m^3$. Calculate

a) Mass of fresh water **(2mks)**

b) Mass of sea water **(1mk)**

c) Total mass **(1mk)**

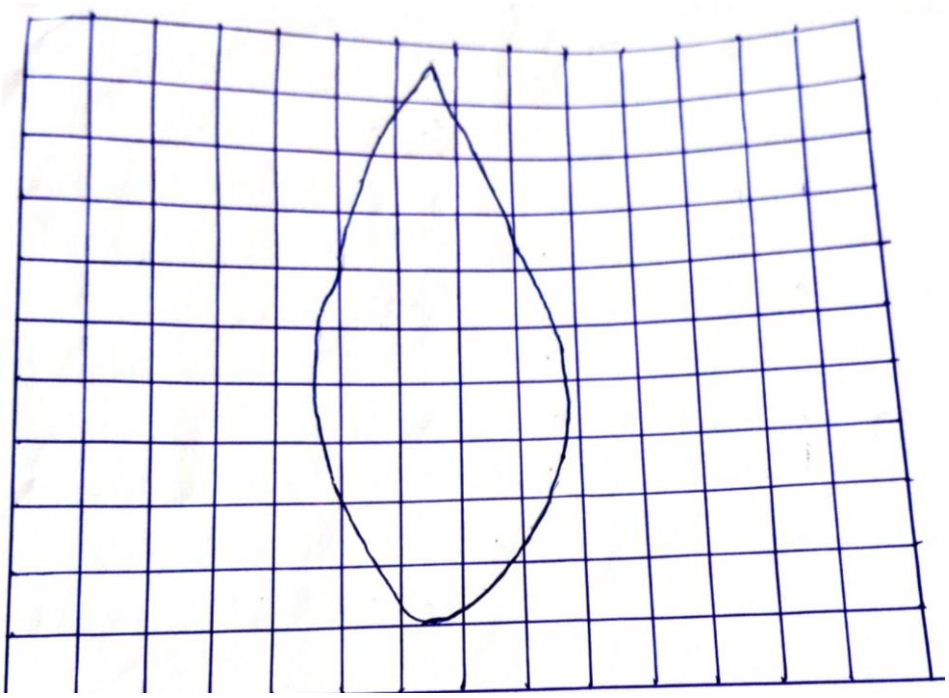
d) Total volume **(1mk)**

e) Density of the mixture **(2mks)**

31. A) Define area and give its S.I unit **(2mks)**

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c) The following is an outline of a leaf use it to answer the questions given. One square measures 1cm by 1cm.



i) State the number of complete squares **(1mk)**

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ii) State the number of in complete squares **(1mk)**

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iii) Calculate the area of the leaf **(3mks)**

FORM 1 EXAMINATION TRIALS

PHYSICS

PRACTICE TRIAL 3

TIME: 2 HOURS

NAME…….. ADM NO…….....

SIGN……...……. DATE;……...

QUESTIONS

1. a) Define masses and state its SI units. **(2mks)**

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b)Name the instruments used to measure mass. **(4mks?)**

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2. Distinguish between a basic physical quantity and a derived physical quantity giving an example of each case. **(3mks)**

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3. a) Define force and state its SI unit. **(2mks)**

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b) State three effects of force when subject to an objects. **(3mks)**

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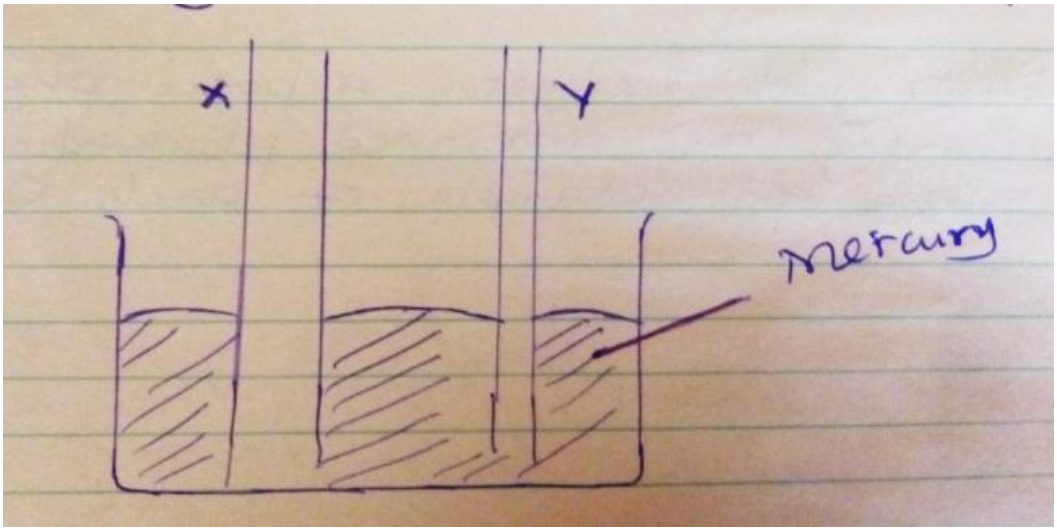
c) List any three types of forces. **(3mks)**

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d) Indicator on the diagram below, the level of the mercury in the tubes x ND Y



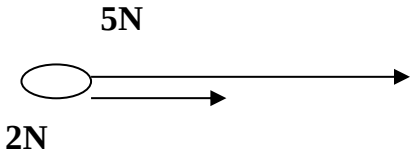
4. a) Differentiate between scalar and vector quantity**.** **(2mks)**

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b) Give the resultant in each case**.** **(4mks)**



4N  **4N**

5. a) Define pressure and state its SI unit**.** **(2mks)**

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b) A brick 210cm long, 10cm wide and 5cm thick has a mass of 500g. Determine the

Greatest pressure that can be exerted by the brick on a flat surface. **(2mks)**

Least pressure that can be exerted by the brick on a flat surface**.** **(3mnks)**

(Take g=10N/KG)

6. a) State any four differences between mass and weight. **(4mks)**

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b) A man has a mass of 70kg. Calculate:

His weight on earth, where the gravitational field strength is 10N/KG. **(2mks)**

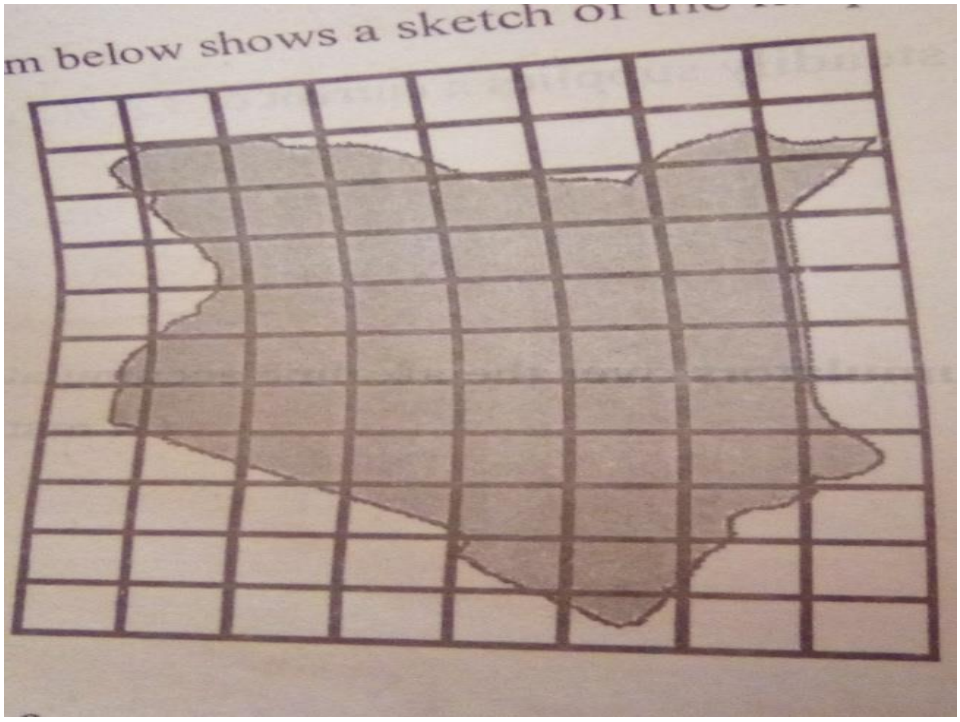
6. His weight on the moon, where the gravitational field strength is 1.7N/kg**.** **(2mks)**

7. a) A sphere of diameter 6.0cm is molded into a thin uniform wire of diameter 0.2mm. Calculate the length of the wire in meters. (take pie =3.14)

b) Find the volume of a triangular prism whose base is 6.0cm, height is 5.0 cm and length is 12.0cm. **(3mks)**

8. The diagram below shows a sketch of the map of Kenya, which is not drawn to scale.

If the area of small square is 2.0cm2. Calculate the area of the map. **(5mks)**



9. Laboratory is a special room where the practical is done and where they store apparatus. State 6 safety rules that one must observe. **(6mks)**

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10. Convert each of the following in as indicated.

1. 10 tones into kg

2. 256g into kg

3. 1.25g into mg

11. a)Define time and state its SI units**.** **(2mks)**

b)Convert the following

F) 24hrs into minutes

G) 360 seconds into hours

12. a) Define physics. **(2mks)**

b) State and explain any two branches of physics.

FORM 1 EXAMINATION TRIALS

PHYSICS

PRACTICE TRIAL 4

TIME: 2 HOURS

NAME…….. ADM NO…….....

SIGN……..……. DATE;……...

QUESTIONS

1. What is meant by the term 'basic quantities' **(1 mk)**

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2. Define length and state its SI unit **(1 mk)**

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3. Name two types of errors and state how each is minimized when measuring the length of objects. **(4 mks)**

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4. Describe how you would estimate the thickness of one paper in a given book if you are provided with a metre ruler only **(3 mks)**

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5. State three limitations of using the displacement method when determining the volume of an irregular solid **(3 mks)**

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6. A wire of radius 6 mm and length 400 is melted into a sphere. Calculate the radius of the sphere in centimeters. **(3 mks)**

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7. Convert 5 g/cm^3 to the SI unit. **(2 mks)**

8. Using the following masses and volumes of substances, calculate their densities in SI unit.

200 mg, 0.0004m^3 **(2 mks)**

0.86 kg, 1000000 mm^3 **(2 mks)**

9. 100 cm^3 of water is mixed with 50 cm^3 of concentrated acid of density 1.2 g/cm^3. Assuming no change in volume, find the average density of the mixture. (Take density of water = 1.0 g/cm^3) **(4 mks)**

10. A density bottle weighs 70 g when filled with water and 94 g when filled with a liquid A. Find the density of liquid A given that the density of water is 1000 kg/m^3. **(5 mks)**

11. State four effects of forces **(4 mks)**

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12. State three types of forces that act between objects that are not in contact **(3 mks)**

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13. Describe two types of molecular forces **(4 mks)**

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14. State three areas of application of capillary rise. **(3 mks)**

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15. Distinguish between mass and weight and state SI units **(4 mks)**

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16. Differentiate between vector quantities and scalar quantities **(2 mks)**

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FORM 1 EXAMINATION TRIALS

PHYSICS

PRACTICE TRIAL 5

TIME: 2 HOURS

NAME…….. ADM NO…….....

SIGN……...……. DATE;……...

QUESTIONS

1.Give two career opportunities in physics. **(2 mks)**

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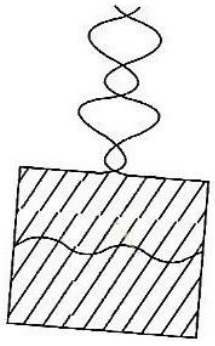
2.Give three basic laboratory rules**.** **(3mks)**

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3.State with a reason what will happen to the diagram if side A is broken with a needle, and draw the final diagram **(4mks)**



A

3.What is the first aid measure for the following accidents in the laboratory.

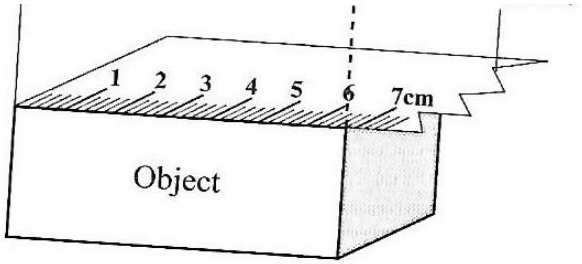
Cuts**.** **(3mks)**

Burns**.** **(3mks)**

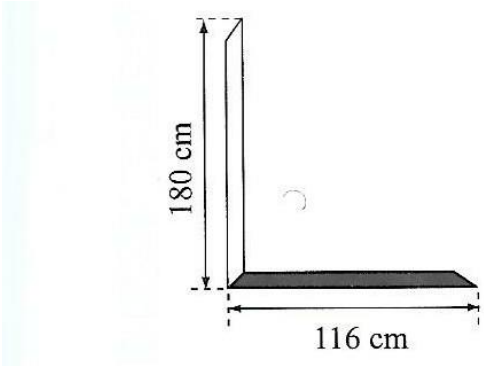
Electric shock **(3mks)**

4.Study the diagram bellow and indicate on the diagram the right position of the eye when taking the measurements**.** **(3mks)**

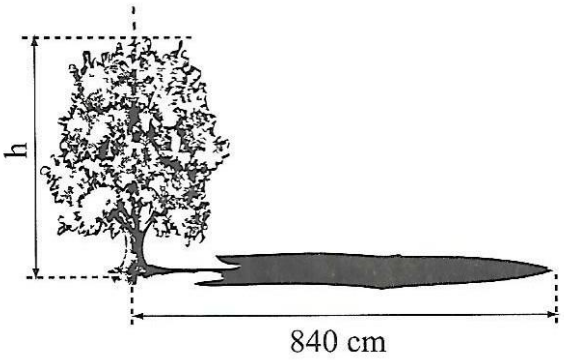
A B C



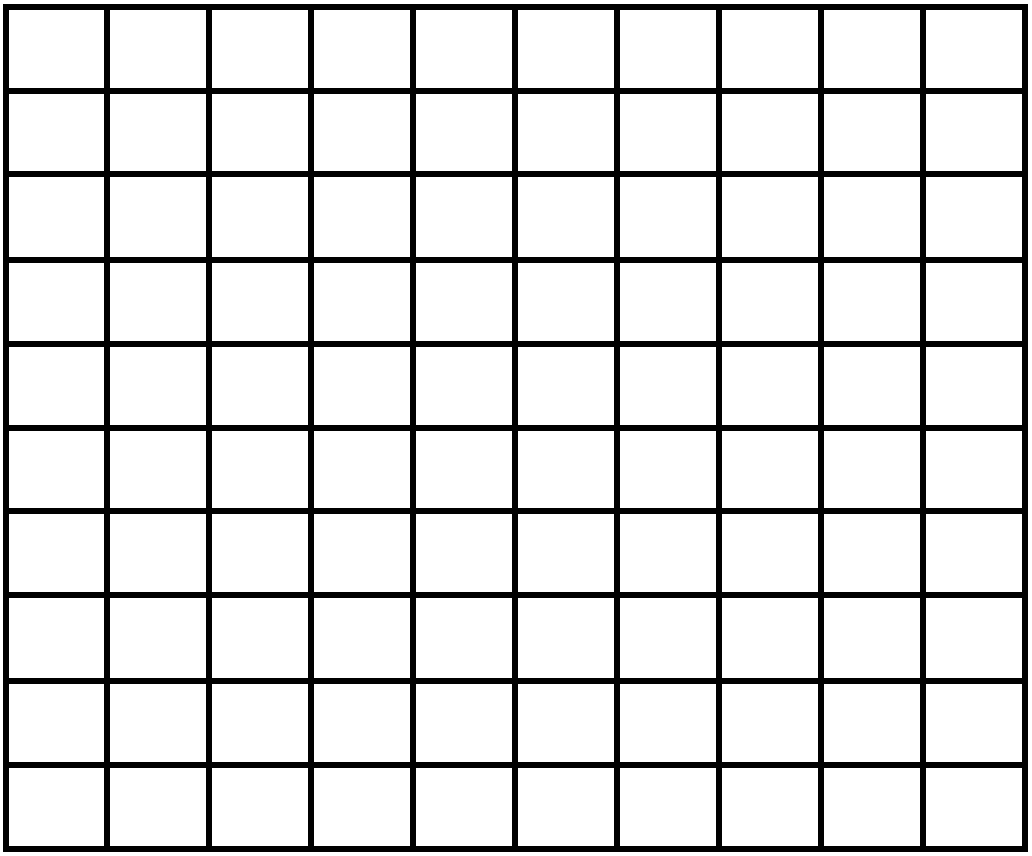
5.Estimate the height of the tree below.



(5mks)



6.Estimate the area of the irregular surface shown in the figure below. **(4mks)**



7.The density of a material is $22.5gcm^{-3}$ .Express this in SI units**.** **(3mks)**

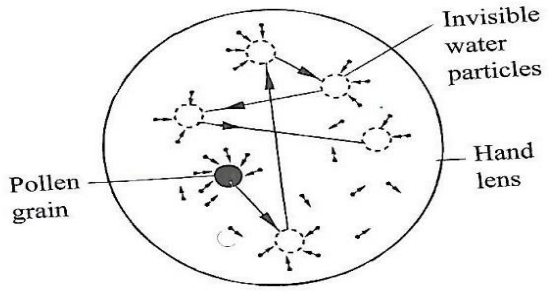
8.Give 3 effects of a force. **(6mks)**

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9.It is observed that the pollen grains are in constant motion. Explain the observation. **(4mks)**



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10. In a hydraulic press,a force of 200N is applied to master piston of area $25cm^2$ .If the press is designed to produce a force of 5000N,determine;

The area of the slave piston**.** **(4mks)**

The radius of the slave piston. **(4mks)**

11.Explain why the walls and ceiling boards painted white**.** **(3mks)**

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12.Explain the greenhouse effect and how it affects the earth**.** **(4mks)**

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13.The ventilations for a room are put near the roof and not near the floor. Explain **n** **(4mks)**

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14.Explain how temperature affects Brownian motion. **(4mks)**

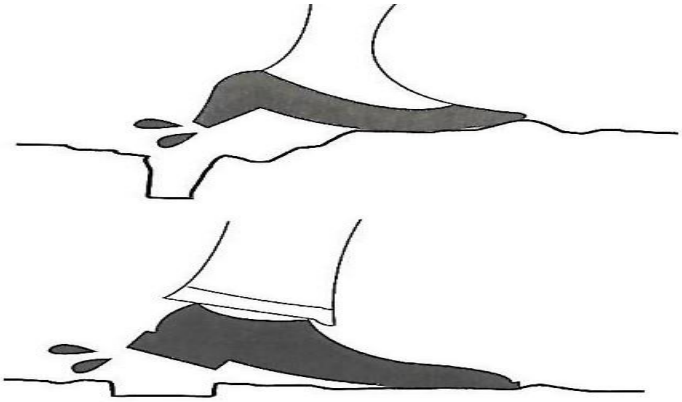
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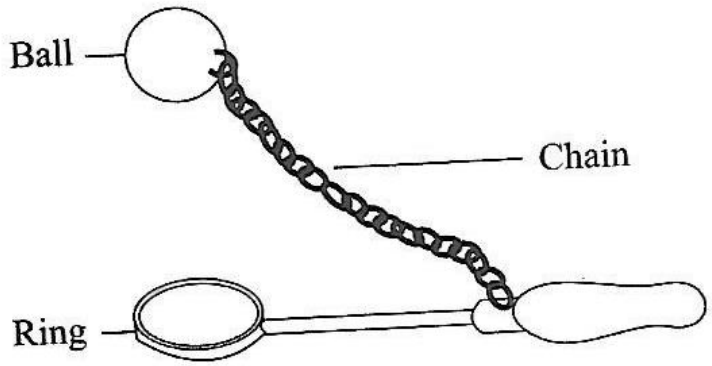
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15. Pressure is affected by many factors,study the diagram below and give reasons for such effects. (**4mks)**



16.The ball shown below is bigger than the ring, explain an experiment to enable the ball pass through the ring**.** **(5mks)**



17.A brick 20cm long,10cm wide and 5cm thick has a mass of 500g.Determine the(Take $g=10Nkg^{-1}$)

(a) greatest pressure that can be exerted by the brick on a flat surface**.** **(3mks)**

(b) Least pressure that can be exerted by the brick on a flat surface**.** **(2mks)**

FORM 1 EXAMINATION TRIALS

PHYSICS

PRACTICE TRIAL 6

TIME: 2 HOURS

NAME…….. ADM NO…….....

SIGN……...……. DATE;……...

QUESTIONS

SECTION A - (40 MARKS)

1. Define the term physics. **(1 mark)**

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2. State **three** career opportunities related to physics. **(3 marks)**

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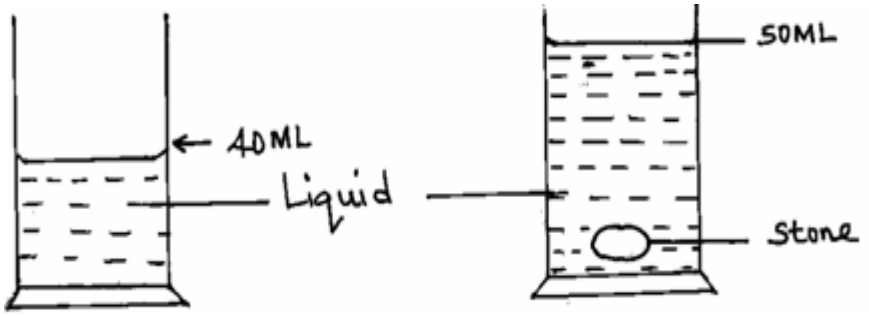
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3. The table **below** shows some basic quantities and their SI units. Complete the table to show the missing entries. **(2 marks)**

	Quantity	S.I unit	Symbols
1		Candela	
2	Amount of substances		

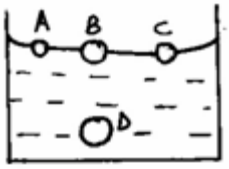
4. A stone of mass, 40g was completely immersed in a liquid. The levels of the liquids are shown in the figure.



Determine the density of the stone in SI unit. **(2 marks)**

5. (a) One of the factors that affect surface tension is temperature of the liquid. State o**ne** other factor. **(1 mark)**

iv) Use surface molecules **A**, **B**, **C** and inner molecule **D** shown **below**, to explain why surface of a liquid is under tension. **(2 marks)**



6. Name **two** forces that determine the shape of a liquid drop on a solid surface. **(2 marks)**

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7. $1800cm^3$ of fresh water of density $1000kg/m^3$ is mixed with $2200cm^3$ of sea water of density $1025kg/m^3$. Calculate the density of the mixture **(4mks)**

8. State the reason why it may not be possible to suck a liquid in to your mouth using a drinking straw in the surface of the moon. **(1 mark)**

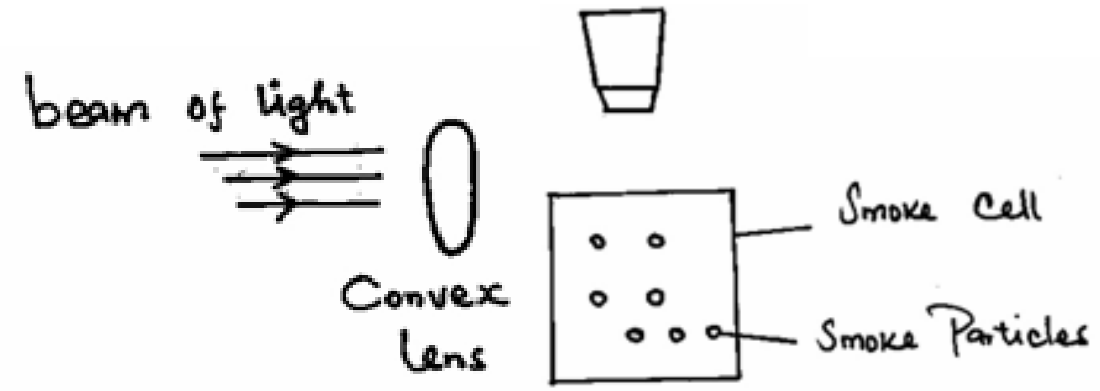
9. In building construction, beans made of concrete are reinforced with steel. Explain.**(2 marks)**

10. When a liquid is heated in a glass flask, its level first falls and then rises. Explain this observation. **(2 marks)**

11. Name the thermometric liquid that is most suitable to use in very cold places. **(1 mark)**

12. (a) State **one** factor which makes gases compressible. **(1 mark**

(b) The figure **below** shows a set up used to demonstrate Brownian motion in gases.



State the role of the; **(3 marks)**

Convex lens.

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Microscope.

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Beam of light.

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(c) Define the term diffusion. **(1 mark)**

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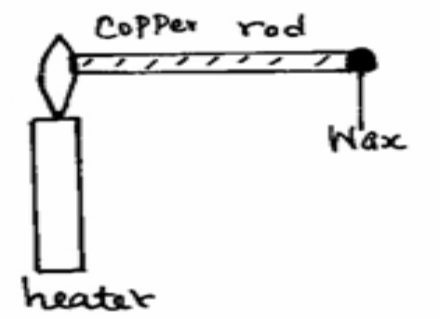
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13. Highlight **two** factors which shows that heat from the sun does reach the earth surface by convection. **(2 marks)**

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14. The figure **below** shows some wax at the end of a copper rod.



State **three** factors that affect the rate at which the wax melts. **(3 marks)**

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15. (a) Define force and give its S.I units **(2mks)**

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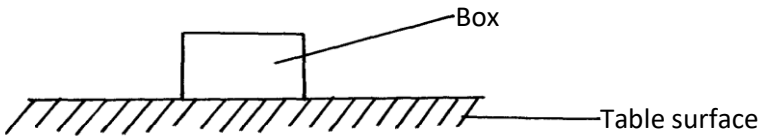
(b) State **three** effects of force on an object **(3mks)**

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(c) Name and show forces acting on a box placed on a table. **(2mks)**



SECTION B - (30 MARKS)

16. A ream of foolscaps containing 500 papers has a thickness of 50mm and a mass of 2kg. if it has a width of 200mm and a length of 300mm, find;

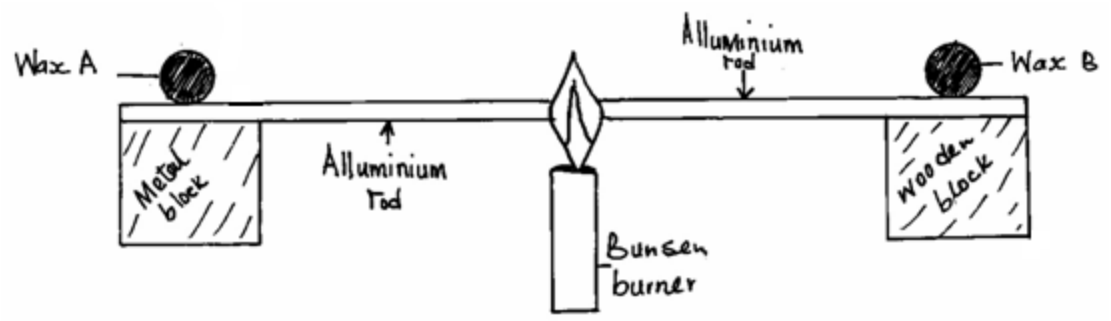
a) The thickness of one sheet of paper **(2 marks)**

b) The mass of one sheet of paper **(2 marks)**

c) The volume of one sheet of paper **(3 marks)**

d) The density of the paper. **(3 marks)**

17. (a) **Two** identical aluminium rods shown in the figure **below** are heated by the same Bunsen burner. One rests on a metal block and the other on a wooden block.

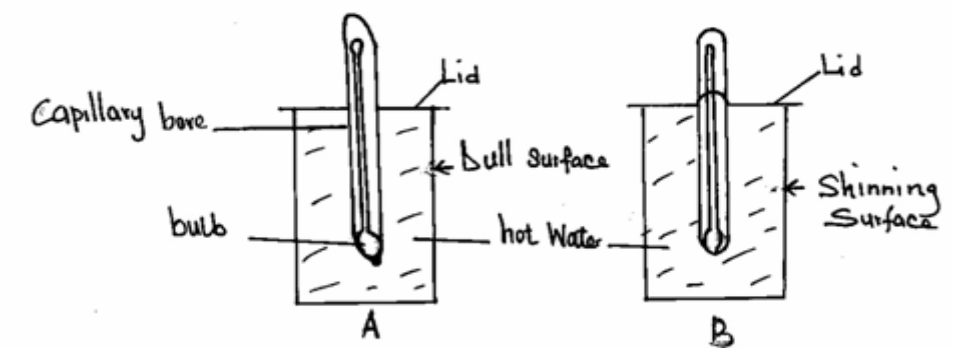


State with a reason which wax is likely to melt. **(2 marks)**

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Two identical cans **A** and **B** were each filled with hot water at the same temperature and covered with an air tight lid as shown **below**.



Given that the outer surface of can **A** is dull while that of **B** is shiny, state with a reason which thermometer would show lower temperature after ten minutes. **(2 marks)**

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(c) State the purpose of the following features of a thermometer. **(3 marks)**

(i) Narrow capillary bore.

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(ii) Thin bulb.

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(iii) Thick glass stem.

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State **three** properties of mercury that makes it a good thermometric liquid. **(3 marks)**

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18. States the reason why it is not correct to quote the weight of solid objects in kilograms**. (1 mk)**

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19. Wasike found that the width of his desk was approximately 10 palm-lengths. If his palm was 15.0cm long, what was the width of his desk in metres? **(3 mks)**

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20. Describe how to estimate the height of a tree using a rod of about 2m long and a tape measur**e.(3 mks)**

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21. The mass of an empty density bottle is 20g its mass when filled with water is 40.0g and 50.0 when filled with liquid x. Calculate the density of liquid X if the density of water is 1000kgm^{-3}.

(3 mks)

FORM 1 EXAMINATION TRIALS

PHYSICS

PRACTICE TRIAL 7

TIME: 2 HOURS

NAME…….. ADM NO…….....

SIGN……...……. DATE;……...

QUESTIONS

1. Explain briefly the first aid measure that should be taken incase of **(2mk)**

Cut

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Poisoning

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2. Define physics**.** **(2mk)**

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3. State any five branches of physics **(5mk)**

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4. State any five career opportunities in physics **(5mk)**

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5. State any five laboratory safety rules **(5mk)**

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6. Name any 4 items contained in the first Aid kit found in the laboratory **(4mk)**

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7. Briefly explain how physics is related to biology **(2mk)**

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8. State any three effects of a force **(3mk)**

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9. Describe the method you would use to measure the circumference of a cylinder using a thread and a meter rule **(4mk)**

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10. A sphere of diameter 3.0 cm is mounted into a thin uniform wire of diameter 0.2mm calculate the length of the wire in meters **(4mk)**

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11. State any three differences between mass and weight **(3mk)**

mass	weight
f)	
g)	
h)	

12. The mass of 25cm^3 of ivory was found to be 0.045kg. Calculate the density of ivory in SI units **(3mk)**

13. 300 cm^3 of fresh water of density 1000kg/m^3 is mixed with 100cm^3 of sea water density 1030kg/m^3.calculate the density of mixture **(4mk)**

14. Explain how you would measure the volume of irregularly shaped object using the displacement method. **(3mk)**

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15. Distinguish between a fundamental and derived quantity giving an example of each **(4mk)**

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16. Define force and state its SI unit **(2mk)**

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17. State any 4 types of force **(4mk)**

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18. Distinguish between a scalar and vector quantity giving an example of each **(4mk)**

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19. State any 3 applications of capillary action **(3mk)**

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20. State any two factors affecting the surface tension **(2mk)**

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21. A man has a mass of 70kg. Calculate

His weight on earth where the gravitational strength is 10 N/kg **(2mk)**

His weight on moon where the gravitational strength is 1.7 N/kg **(2mk)**

22. Explain briefly why water wets the glass while mercury does not **(2mk)**

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23. Complete the table below **(7mk)**

	Fundamental quality	SI UNIT	SYMBOL
1		meter	M
2	Mass		kg
3	Time		
4			A
5		Kelvin	K

24. Differentiate between cohesive and adhesive forces **(2mk)**

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25. A body weighs 400N in water. If the up thrust force is 20N.calculate its weight in air **(2mk)**

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26. Explain briefly why a razor blade floats in water and when soap solution is carefully added to the water it sinks **(3mk)**

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27. Explain the following behavior of molecules.

When it is raining it is advisable not to touch a canvas tent from inside **(2mk)**

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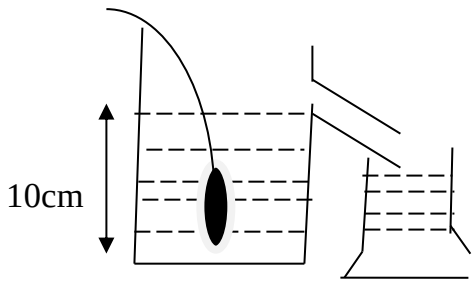
Water rises up in harrow tubes but Mercury which is also a liquid falls in a narrow tubes to level below the outside surface **?** **(2mk)**

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28. A eureka can of mass 100g and cross-sectional area $100cm^2$ is filled with water of density $1g/cm^3$.A piece of metal of mass 20g and density $8g/cm^3$ is lowered carefully into the can as shown



Calculate

The total mass of water and Eureka can before the metal was lowered **(3mk)**

The volume of water that overflowed **(2mk)**

The final mass Eureka can and its content **(3mk)**

FORM 1 EXAMINATION TRIALS

PHYSICS

PRACTICE TRIAL 8

TIME: 2 HOURS

NAME…….. ADM NO…….....

SIGN……...……. DATE;……...

QUESTIONS

1. Name three physical quantities and their SI units**.** **(6mks)**

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2. Name the instruments you would use to measure each of the following:

The length of a football field**. (1mk)**

The height of a 20 litre jerrican **(1mk)**

The circumference of your waist. **(1mk)**

3. A cylinder has a diameter of 4.2cm. How many times would a thread of 132cm be wound around the cylinder ? **(3mks)**

4. A page of a book measures 14.5cm x 21.4 cm. What is its area in square millimetres **? (3mks)**

5. Define density and state its SI units**.** **(2mks)**

6. The water level in a burette is $30cm^3$. If 55 drops of water fall from the burette and the average volume of one drop is $0.12cm^3$, what is the final water level in the burette ? **(3mks)**

7. A cube of iron of side 4cm has a mass of 512g. Find:

The volume of the cube in m^3 **(3mks)**

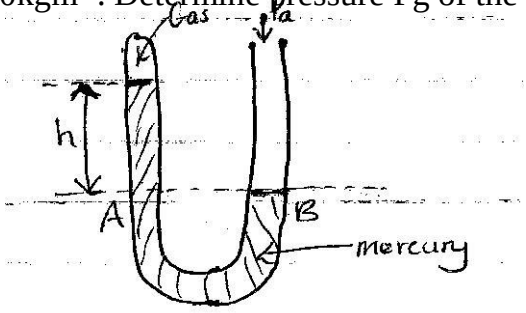
The density of iron in kgm^{-3} **(3mks)**

8. What is pressure ? State its SI unit. **(2mks)**

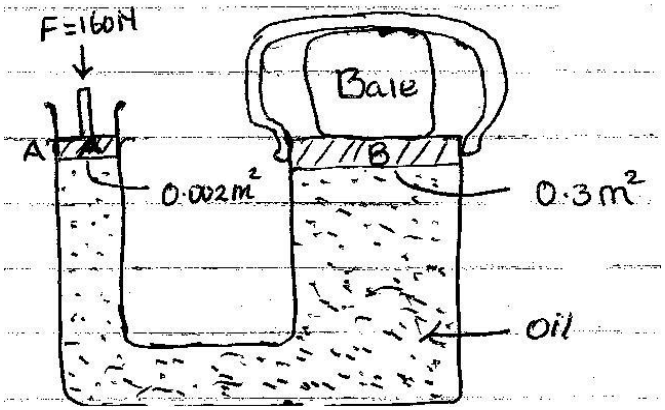
9. Explain the action of drinking straw. **(3mks)**

10. Using the crashing can experiment, explain using a diagram the existence of atmospheric pressure **(5mks)**

11. The diagram below shows a mercury manometer. Some dry gas is present in the closed space in limb A, while limb B is open. If atmospheric pressure Pa = 103 000 pa, h = 30mm and density of mercury is 13 600kgm^{-3}. Determine pressure Pg of the gas. (**Take g = 10Nkg^{-1}**) **(4mks)**



12. The figure below shows a simple hydrauric press used to compress a bale. The cross-section areas of A and B are $0.002m^2$ and $0.30m^2$ respectively:



a) Pressure exerted on the oil by the force applied at A. **(3mks)**

b) Pressure exerted on B by the oil**.** **(2mks)**

c) Force produced on B compressing the bale**.** **(3mks)**

13. A sea diver is 35m below the surface of sea water. If the density of the sea water is $1.03gcm^{-3}$ and g is 10N/kg. Determine the total pressure on him. (Atmospheric pressure = $103\ 000Nm^{-2}$) **(3mks)**

14. A brick 20cm long, 10cm wide and 5cm thick has a mass of 500g. Determine the:

d) Greatest pressure that can be exerted by the brick on a flat surface. **(3mks)**

e) Least pressure that can be exerted by the brick on a flat surface. **(Take g = 10N/kg)** **(3mks)**

15. Define matter and give the three states of matter. **(4mks)**

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16. Explain why the density of a gas is much less than that of a solid or liquid**.** **(2mks)**

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17. Explain the following:

It is possible to compress gases but not solids and liquids. **(2mks)**

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A perfume sprayed at one corner of a room spreads quickly to the entire room. **(2mks).**

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18. A smoke cell contains a mixture of trapped air and smoke. The cell is brightly lit and viewed through a microscope. Small bright specks are seen dancing in a random manner.

1. What are these small bright sperks ? **(1mk)**

2. Why do they move in a manner described above **?** **(2mks)**

19. Using pollen grains placed in water, explain how their motion supports the idea that matter is not continuous. **(2mks)**

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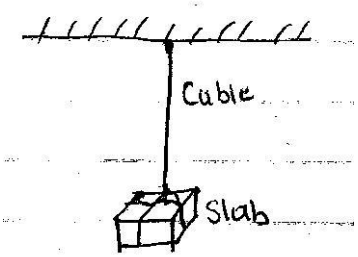
……

20. Define force and give its SI units. **(2mks)**

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21. A concrete slab of mass 90kg is held by a steel cable of a crane as shown in the fig below.



Draw and name the forces acting on the slab**.** **(2mks)**

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Determine the tension in the cable**.** **(3mks)**

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22. When water is poured on a dry glass slab it spreads uniformly but it forms spherical droplets on a waxed glass slab. Explain. **(4mks)**

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23. A man has a mass of 70kg. Determine

His weight on earth, where the gravitational field strength is 10N/kg. **(3mks)**

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……

His weight on the moon, where the gravitational field strength is 1.7N/kg. **(3mks)**

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24. A mass of 7.5kg has weight of 30N on a certain planet. Calculate the acceleration due to gravity on this planet. **(3mks)**

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25. A spring stretches by 6cm when supporting a load of 15N.

How much would it stretch when supporting a load of 5kg? **(3mks)**

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What load would make the spring extend by 25mm ? **(3mks)**

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26. Describe a method that can be used to open a tight lid of a bottle without damaging it. **(2mks).**

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FORM 1 EXAMINATION TRIALS

PHYSICS

PRACTICE TRIAL 9

TIME: 2 HOURS

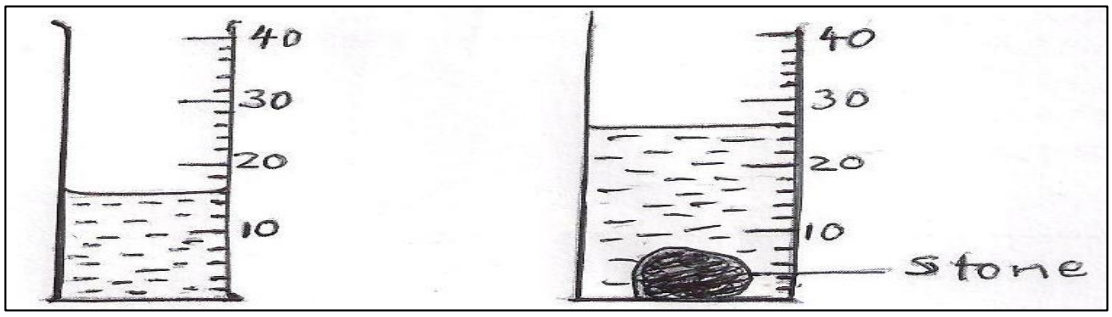
NAME…….. ADM NO…….....

SIGN……...……. DATE;……...

QUESTIONS

Section A: 25 marks

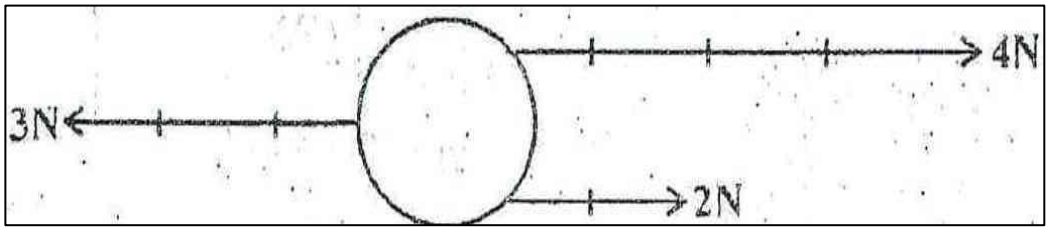
1. The figure below shows the volume of water in a measuring cylinder before and after immersing a stone. If the mass of the stone is 125g, determine its density**.** **(3mks)**



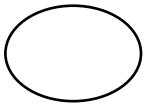
2. A drug manufacturer gives the mass of an active ingredient in a table as 4.0mg. Express this quantity in **kilograms** **(1mk)**

3. Giving an example, define the term derived quantities. **(2mks)**

4. A body is acted upon by three forces as shown below.



Draw on the body below to show the resultant force acting on it. **(2mks)**



5. State any two the difference between mass and weight **(2mks)**

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6. Explain why water wets the glass while mercury does not**.** **(2mks)**

……

……

……

7. Name the instruments you would use to measure each of the following:

The length of a football field. **(1mk)**

The height of a 20 litre jerrican **(1mk)**

The circumference of your waist**.** **(1mk)**

8. The water level in a burette is $30cm^3$. If 55 drops of water fall from the burette and the average volume of one drop is $0.12cm^3$, what is the final water level in the burette? **(2mks)**

9. A man has a mass of 70kg. Determine

His weight on earth, where the gravitational field strength is 10N/kg. **(2mks)**

The gravitational field strength on the moon if his weight on the moon is 119N **(2mks)**

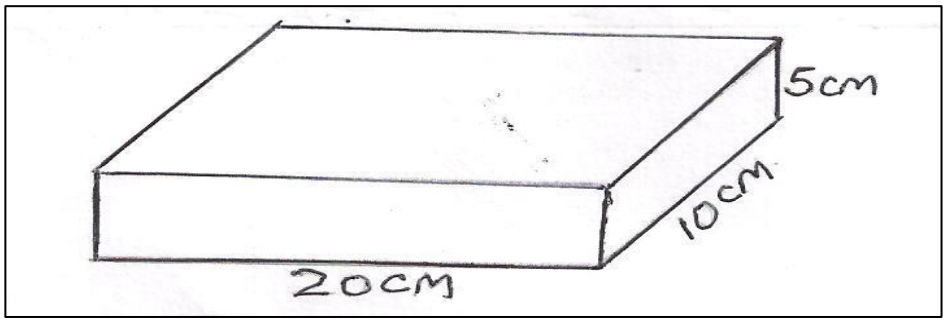
10. With the aid of a diagram show that pressure increases with depth **(2mk)**

11. Describe an experiment to show that matter is made up of small particles **(2mk)**

Section B: 55 marks

12. (a) Define pressure and state its SI unit **(2mks)**

(b) The figure below shows the measurements of a solid of mass 50kg.



Determine:

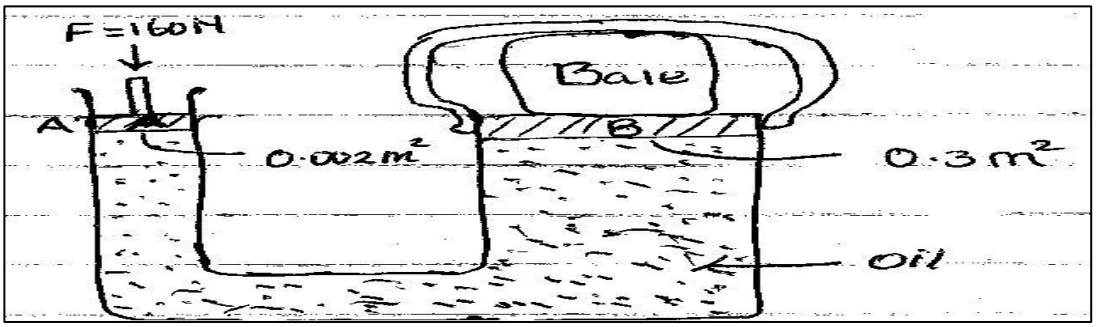
f)The weight of the solid **(1mk)**

g) The minimum pressure the solid can exert on a flat **surface** **(3mks)**

h) The maximum pressure the solid can exert on a flat surface **(3mks)**

i) A sea diver is 35m below the surface of sea water. If the density of the sea water is $1.03gcm^{-3}$, the atmospheric pressure $103\ 000Nm^{-2}$ and g is 10N/kg; determine the total pressure on him. **(3mks)**

13. The diagram below shows a simple hydraulic lift



If a force of 160N is applied on the small piston. Determine:

a) The pressure at the side of small piston A. **(2mks)**

b) Pressure experienced by the **oil** **(1mk)**

c) Force produced on Large piston B to compress the bale **(3mks)**

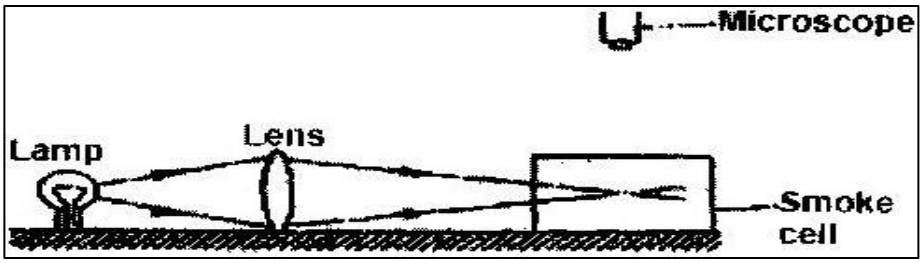
d) State **two** factors that affect pressure other than depth**.** ` **(2mk)**

14. a)Define the term **diffusion** **(1mk)**

b) Distinguish between solid and liquid states of matter in terms of intermolecular forces. **(2mks)**

c) Hydrochloric gas diffuses faster than ammonia gas. Suggest a reason for this observation**(2mks)**

b) Brown motion of smoke particles can be studied by using the apparatus shown below. To observe the motion, some smoke is enclosed in the smoke cell and then observed through the microscope.

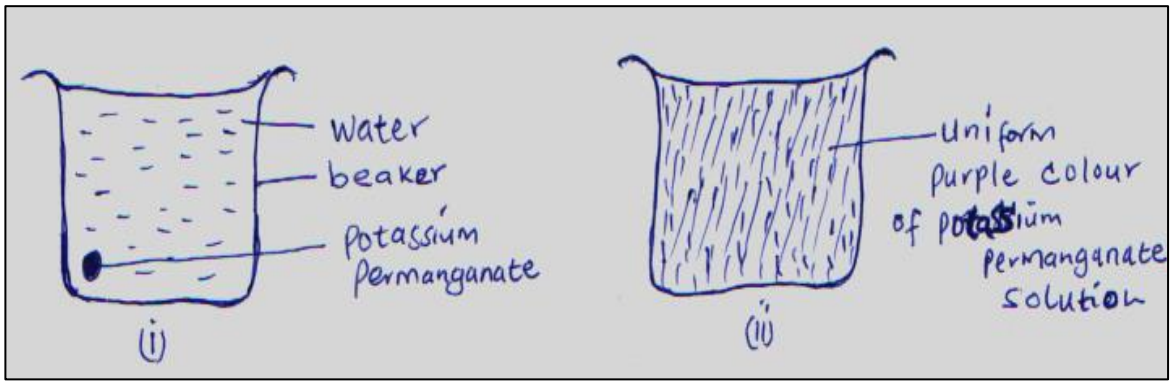


(a) Explain the role of the lamp, lens and microscope in the experiment **(3mks)**

(b) State and explain the nature of the observed motion of the smoke particles **(2 marks)**

(c) State what will be observed about the motion of the smoke particles if the temperature surrounding the smoke cell is slightly raised. **(1 mark)**

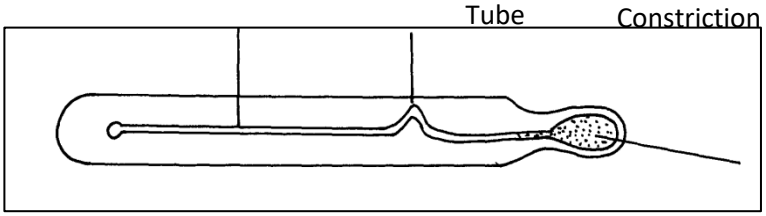
15. The figure below shows a beaker filled with water. Some potassium permanganate was gently introduced at the bottom of the beaker at the position shown.Figure (ii) shows uniform purple colour of potassium permanganate solution after about 10 minutes



Explain how the appearance in figure(ii) was caused**.** **(2mks)**

16. a)Define the term temperature and state its SI **units** **(2mks)**

b)The figure is of a below represent mercury in a clinical thermometer.



Explain why;

1. There is a constriction on the tube **(1mk)**

2. The bulb is thin **(1mk)**

3. Mercury is the mostly preferred thermometric liquid in clinical thermometer than alcohol **(2mks)**

4. A clinical thermometer is likely to break if sterilized using boiling water **(1mk)**

v) Convert

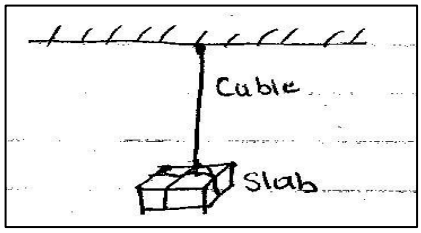
Temperatures of -173^{o}c to **Kelvin** **(2mks)**

Temperatures of 376K to ^{o}c. **(2mks)**

27. a) Giving an example in each, state the difference between scalar and vector quantity**.**

(4marks)

b) A concrete slab of mass 20g is held by a steel cable of a crane as shown below. Name and show the forces acting on the slab **(2mks)**



c)State any **two** examples of contact forces. **(2mks)**

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d) State any **three** effects of a force on a body **(3mks)**

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FORM 1 EXAMINATION TRIALS

PHYSICS

PRACTICE TRIAL 10

TIME: 2 HOURS

NAME…….. ADM NO…….....

SIGN……..……. DATE;……...

QUESTIONS

1. What do you understand by the term Physics **(1mk)**

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2. The study of physics is divided into a number of branches: list 3 branches under which we study physics **(3mks)**

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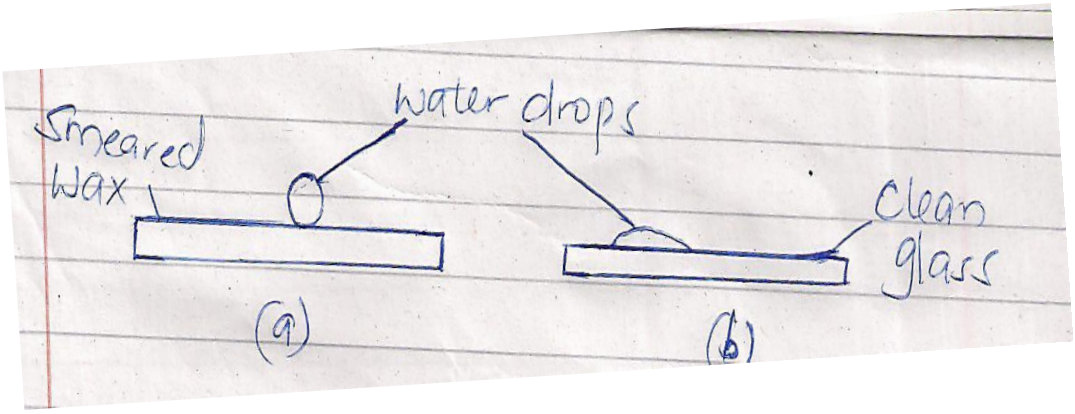
3. (a) Define the term force and state its SI unit **(2mks)**

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(b) The figure below shows water drops on two surfaces. In (a) the glass surface is smeared with wax while in (b) the glass surface is clean



Explain the difference in the shapes of the drops **(2mks)**

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(c) A metal pin was observed to float on the surface of pure water. However the pin sunk when drops of soap solution were carefully added to the water. Explain this observation **(2mks)**

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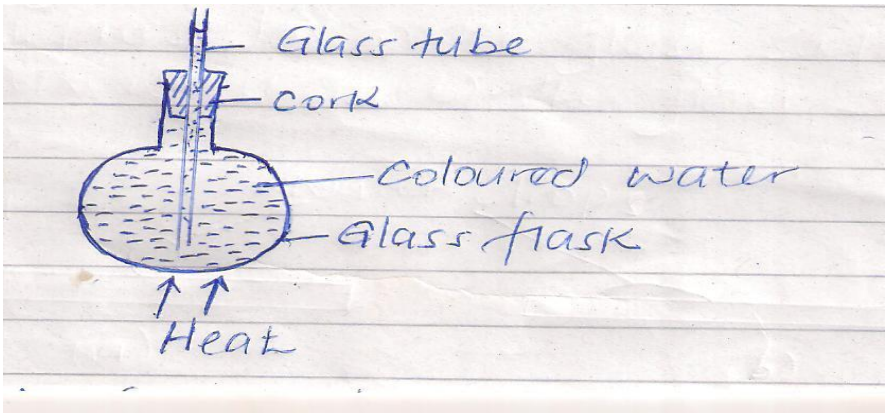
4. Explain why a thick glass is more likely to break when hot water is poured on it than thin glass. **(2mks)**

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5. The figure below shows a flask filled with coloured water. The rubber cork is pushed until the water rises a short distance in the glass tube



When the flask is heated it is noted that the level of water first drops before it starts to rise. Explain this observation **(3mks)**

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6. (a) Define the term pressure and state its SI units **(2mks)**

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(b) Explain each of the following

(i) Water dams are constructed with thicker walls at the bottom that at the top **(2mks)**

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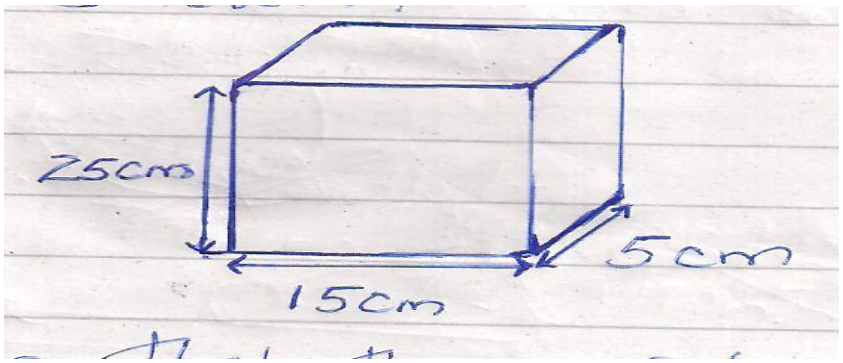
……

(ii) It is easier to cut through a log of wood with a sharp panga than a blunt one **(1mk)**

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(c) A block of wood of dimensions 25cm by 15cm by 5cm rests on a flat surface as shown



Given that the weight of the block is 25N.

Determine:

(i) The maximum pressure it exerts on the surface **(3mks)**

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(ii) The minimum pressure it exerts on the surface **(3mks)**

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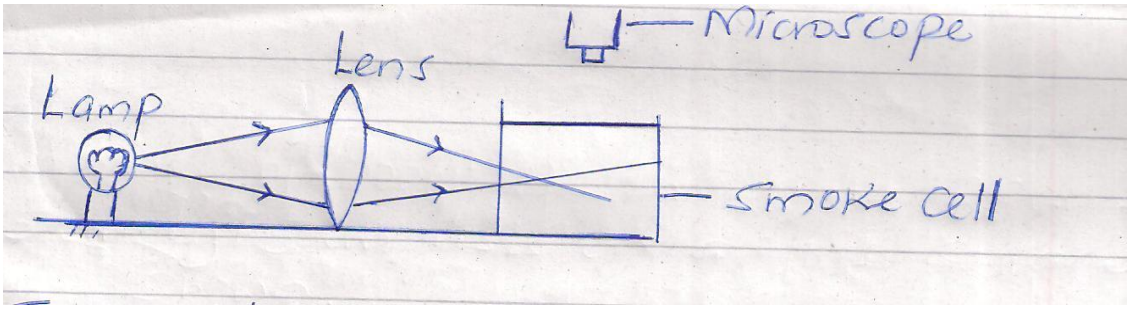
7. (a) Define matter **(1mk)**

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(b) The following set up was used to observe Brownian motion



Explain the role of the following:

Lamp **(1mk)**

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Lens **(1mk)**

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Microscope **(1mk)**

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(c) State and explain the observation made in the smoke cell **(3mks)**

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(d) What will be the effect of increasing the temperature of the smoke cell on the observations made above **(1mk)**

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8. (a) Define the term density and state its SI unit **(2mks)**

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(b) The density of concentrated sulphuric acid is $1.8gcm^{-3}$. Calculate the volume of 3.6Kg of the acid. **(3mks)**

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(c) The mass of a density bottle is 20.0g when empty, 70.0g when full of water and 55.0g when full of a second liquid. Calculate the density of the liquid **(4mks)**

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9. A text book has 1000 sheets bound between two covers each of thickness 0.10mm. Each sheet of paper is 0.05mm thick. Determine the thickness of the book. **(2mks)**

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10. The water level in a burette is $30cm^3$. If 55 drops of water fall from the burette and the average volume of one drop is $0.12cm^3$, what is the final water level in the burette **(2mks)**

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11. (a) Define the term temperature and state its SI units **(2mks)**

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(b) Convert each of the following from Kelvin to ^{0}C **(2mks)**

(i) OK

(ii) 167K

(c) State three properties of a good thermometric liquid **(3mks)**

(d) State and explain the two special features of a clinical thermometer **(4mks)**

(e) Give a reason why a clinical thermometer should never be sterilized using boiling water **(1mk)**

12. (a) What do you understand by anomalous expansion of water **(1mk)**

(b) Sketch a graph of variation of density of water with temperature when water is heated from 0^0C to 10^0C **(2mks)**

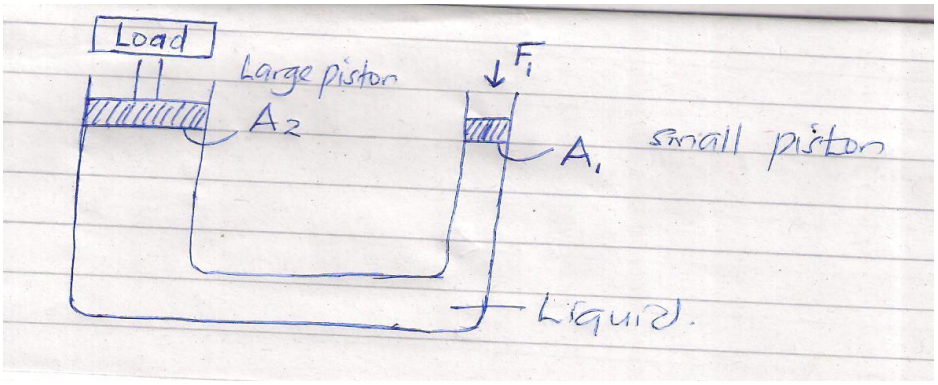
(c) Explain the following;

(i) Aquatic animals are able to survive under layers of ice even if the surface is completely frozen **(2mks)**

(ii) Water pipes are liable to burst during winter **(2mks)**

13. (a) State the Pascal's principle of transmission of pressure in liquids **(1mk)**

(b) The figure below shows a hydraulic machine



If the area of the small piston is $2cm^2$ and the large piston is $1000cm^2$. Determine the force on the small piston that would be required to lift a load of mass 2000Kg. **(3mks)**

(c) Give one property of a liquid that can be used in a hydraulic machine (1mk)

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14. (a) Give three differences between mass and weight **(3mks)**

MASS	**WEIGHT**

(b) A man has a mass of 70Kg. Calculate his weight on the moon where the gravitational field strength is 1.7N/Kg **(2mks)**

(c) A mass of 7.5Kg has weight of 30N on a certain planet. Calculate the acceleration due to gravity on this planet **(2mks)**

(d) Differentiate between a Scalar quantity and a vector quantity **(2mks)**

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