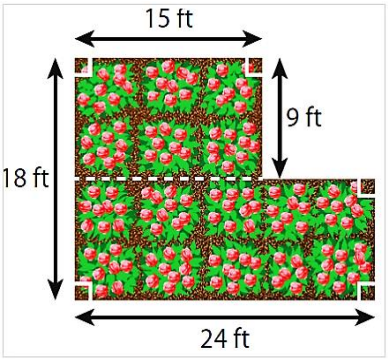
TERMLY EXAMINATIONS

S.3 PHYSICS

TIME 2 HOURS

Name……..Stream……

1. During class activity, the students were tasked to find the length of their classroom. Osman used his foot span and found out that the classroom length is 50-foot spans meanwhile John went to the laboratory and got a tape measure to which he used and obtained 12 meters.
   a) Why do you think there are differences between the values obtained by the two students…….
   .....(01 mk)
   b) Which of the two values obtained is an estimated value?……..(01 mk)
   c) Which of the two values obtained is the actual value ?……..(01 mk)
   d) Who obtained the actual value of the length of classroom?.....(01 mk)
   e) How can we improve the reliability of an estimate?.....
   …….(01 mk)
2. **The diagram shows the shape and dimensions of Teresa's rose garden**.



(a) Teresa wants to buy mulch for her garden. One bag of mulch covers 12 square feet. How many bags will she need? (05 marks)

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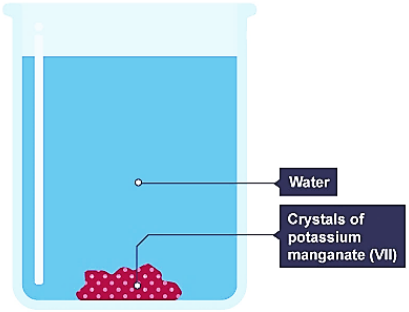
3. Potassium permanganate was put in the beaker having water as shown below.



a) Describe and explain what happens after some time. (05 mks)

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4. When a glass surface is poured with water, both adhesive and cohesive forces act on the surface of the water.

a) which of the two forces tends to make the liquid to spread over the surface? (01 mk)

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b) Which of the two forces is responsible for the formation of water droplets on the liquid surface? ……(01 mk)

c) The force of attraction between the same molecules is known as ……(01 mk)

d) The force between two or more different molecules to interact with each other is known as……(01 mk)

e) Small insects such as water striders can walk on water even though they are denser than water. This is because of ……...(01 mk)

5. We see the image of our face when we look into the mirror.

a) Which type of mirror is shown above?.....

……..(01 mk)

b) Which type of image is formed?.....(01 mk)

c) State the features of the image formed. (03 mks)

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6. An object is pulled through a distance of **2 m** by a force of **55 N** on the first day. The same object is again pulled through a distance of **20 cm** by a force of **1500 N** on the second day. Calculate the work done on;

   (i) First day (02 mks)

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   (ii) Second day (02 mks)

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   (iii) On which day was much work done? And why do you think so? (01 mk)

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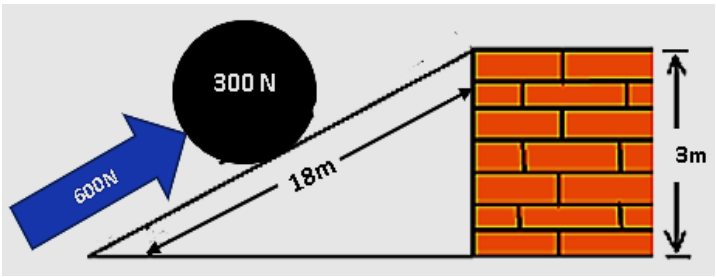
7. A force of **600 N** is used to move a load of **3000 N** up an inclined plane. Given that the slanted height and vertical height of the plane are **18 m** and **3m** respectively.
   Find
   a) Velocity ratio of the plane (02 mks)
   b) Mechanical advantage (02 mks)
   c) Efficiency of the plane (01 mk)



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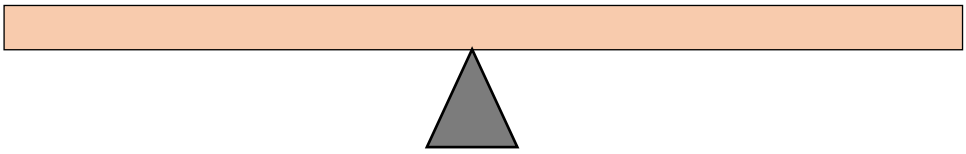
9. The figure below shows a metre rule balancing horizontally on a pivot



a) Locate the centre of gravity on the above metre rule using letter **G (01 mk)**

b) Briefly explain why the metre rule balances only at that point of contact. (03 mks)

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c) How useful is this knowledge of balancing the centre of gravity in real life (01 mk)

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10. If you're walking in snow, and you had these shoes to pick from for that exciting venture,

A

B

a) Which of the two shoes would you opt for?.....(01 mk)

b) Briefly explain why you would wear that shoe in question 10 (a) above instead of the other? (03 mks)

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c) What are the other applications of knowledge in other fields? (01 mk)

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11. Concrete is made by mixing **gravel** or small stones, **sand**, **cement** and **water** in right proportions. The gravel or stones make the concrete very strong; the sand fills up the spaces between the stones.

a) What are the mechanical properties of concrete (03 mks)

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b) Concrete normally has great compressional strength but weak tensile strength. Explain briefly how you can possibly improve on the strength of ordinary concrete (02 marks)

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12. Almost everything in the universe is in motion relative to the other, for example the moon moves, so does the earth, and even the universe itself is believed to be expanding as proposed by the big bang theory.

a) The earth has two motions, name them. (02 mks)

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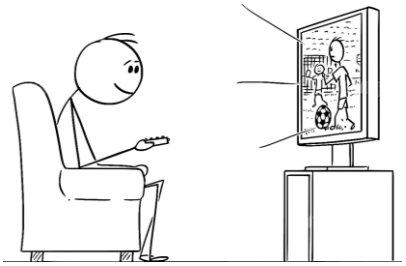
13. Football fans across the world experience the time variation during football games, for example as you were in Uganda watching a live football match happening in Europe at 8pm at night you were surprised to notice that it is still daytime in Europe. Briefly explain the motion of the earth that is responsible for **time** variation on different places on earth (03 mks)



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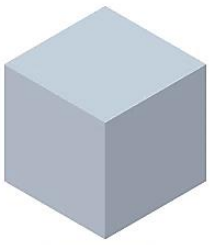
14. A student wants to calculate the volume of the two objects shown below: He however has some challenges in doing so help him write him all the procedures to be followed for accurate results.



Metal cube

Small statue

Describe the methods that the student should use to calculate the volumes of the two objects.

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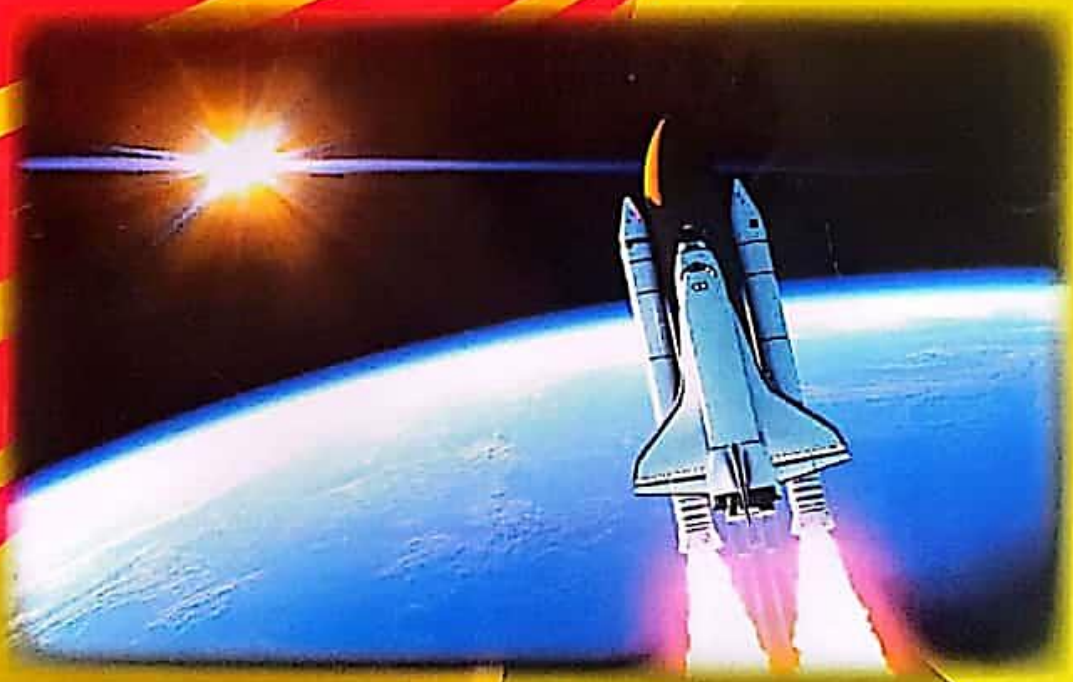
S.2
O Level

PHYSICS

WORKBOOK
AND
ACTIVITIES OF INTEGRATION



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