Gatitu secondary school

Form 3 tune up exam 2015 2nd term

Name .....adno.....class.....

1. What is meant by the centre of gravity of a body? (1mk)

2. State two factors that should be controlled in manufacturing a cylindrical container of uniform thickness, which should normally be in a standing position?(2 marks)

3. In the set up in the figure below, the metre rule is in equilibrium

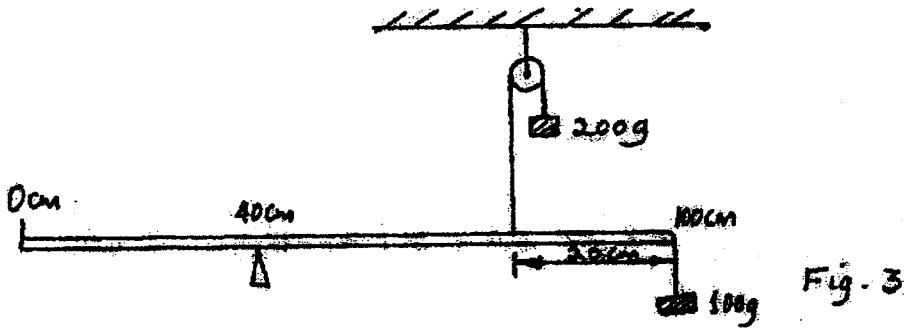


Fig. 3

Given that the metre rule is uniform, determine its weight (5 marks)

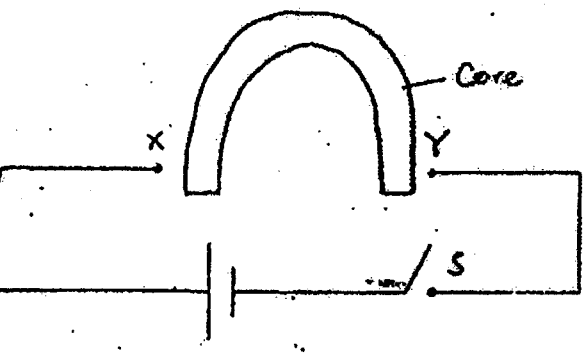


Fig. 7

Figure 7 shows an incomplete circuit of an electromagnet. Complete the circuit between X and Y drawing the windings on the two arms of the core such that A and B are both North poles when switch S is closed. Indicate the direction of the current on the windings drawn. (1 mark)

11. a) In an experiment to determine the strength of an electromagnet, the weight of pins that can be supported by the electromagnet, was recorded against the number of turns. The current was kept constant throughout the experiment. Table 1 shows the data obtained.

Number of turns, n,	0	4	8	12	16	20	24	28	32	36
Weight, of pins x 10-3(N)	0	4	14	30	58	108	198	264	296	300

Table 1

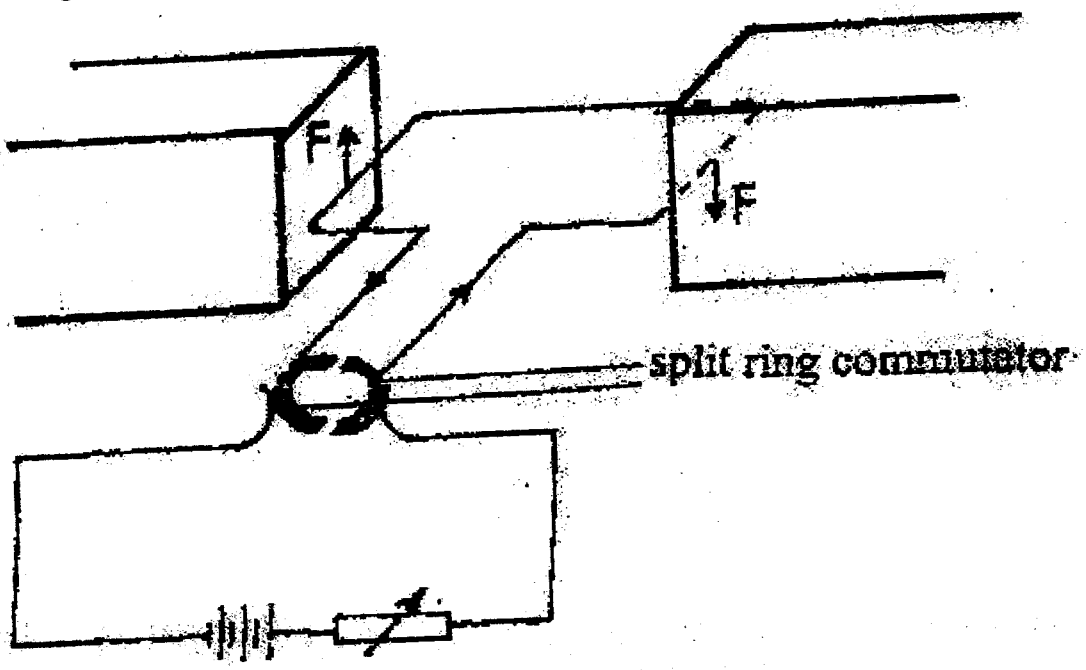
(i) Plot a graph of weigh, W (y-axis) against the number of turn's n (5mks)

(ii) Use the domain theory to explain the nature of the curve. (3marks)

(iii) Sketch on the same axes, the curve that would be obtained using a higher current. (1 mark)

b) Using a labeled diagram, explain the working of a simple relay. (4 marks)

13. The figure below shows a current carrying coil in a magnetic field. The direction of the current and the resulting force are shown. Study the figure and answer questions 1 and 2.



i). Label the poles of the magnets.

(1mk)

ii).Explain the purpose of the split ring commutator in the principle of the D.C motor shown in the diagram.

(2mks)

14. An electromagnet is made by winding insulated copper wire on an iron core. State two changes that could be made to increase the strength of the electromagnet.

16. (a) An object O is placed in front of convex mirror as shown in figure 2

Fig.2

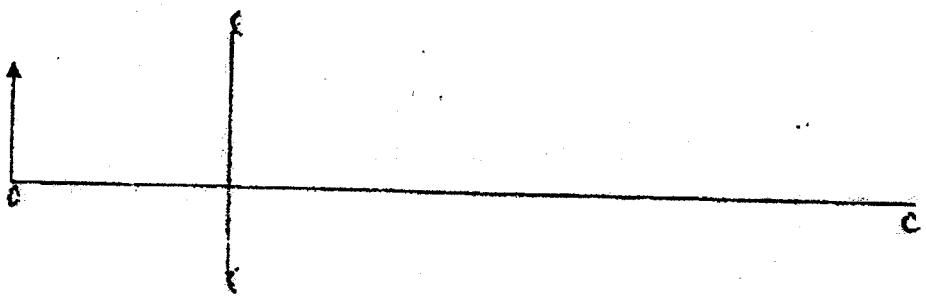


Fig. 2

(i) Draw to scale a ray diagram to show the position of the image (