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ENGINEERING DRAWING I

June/July 2016

Time: 3 hours



THE KENYA NATIONAL EXAMINATIONS COUNCIL

**DIPLOMA IN MECHANICAL ENGINEERING (PLANT OPTION)  
DIPLOMA IN AUTOMOTIVE ENGINEERING  
DIPLOMA IN MECHANICAL ENGINEERING  
(CONSTRUCTION PLANT OPTION)**

**MODULE I**

ENGINEERING DRAWING I

**3 hours**

**INSTRUCTIONS TO CANDIDATES**

*You should have the following for this examination:*

- Drawing paper size A3;
- Drawing instrument;
- Non programmable scientific calculator.

*This paper consists of **TWO** sections; A, and B.*

*Answer **BOTH** questions in Section A (**compulsory**) and any other **TWO** questions from Section B.*

*Maximum marks for each part of a question are as shown.*

*Candidates should answer all questions in English.*

**This paper consists of 3 printed pages.**

**Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.**

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Turn over



SECTION A (compulsory)

1. Figure 1 shows an orthographic projection of a component. Draw an isometric view of the component. (20 marks)

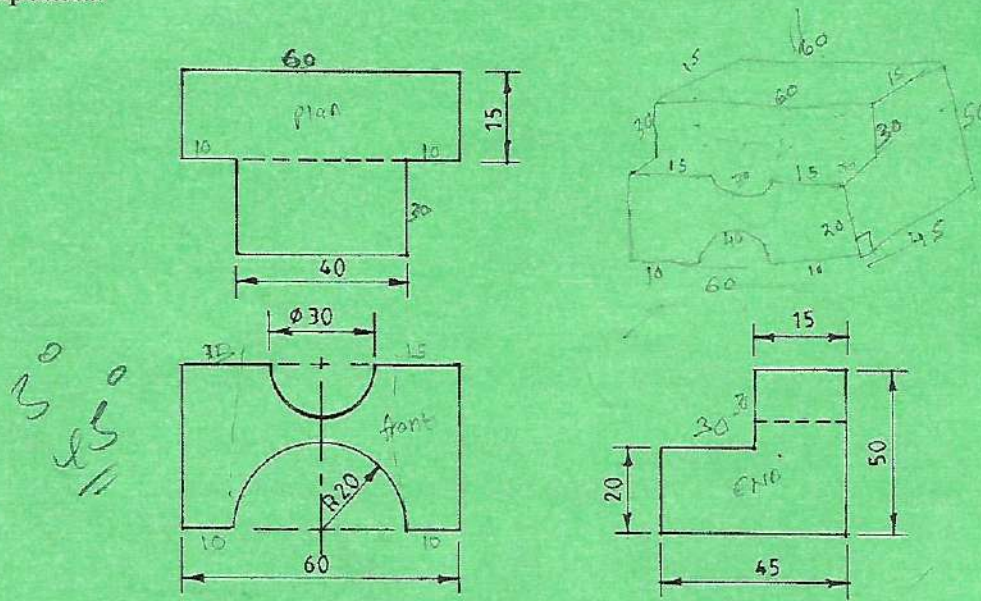


Fig. 1

2. Figure 2 shows a mechanism consisting of Crank OA of radius 25 mm which rotates about centre O, and arm CB which oscillates about centre C and a link AB which connects the crank and the arm. Plot the locus of point P for one complete revolution of crank OA. (20 marks)

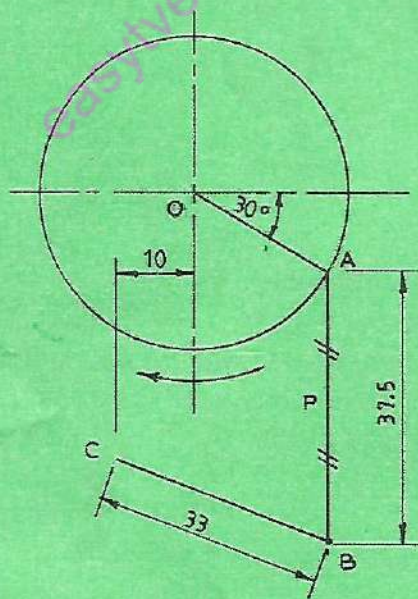
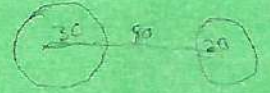


Fig. 2



SECTION B



Answer **TWO** questions from this section.

3. (a) Draw internal and external tangents to two unequal circles of radii 30 mm and 20 mm respectively, whose centre distance is 80 mm apart. (16 marks)
- (b) Construct a triangle whose perimeter is 100 mm and the ratio of the sides 4:5:6. (4 marks)
4. (a) Construct the lever shown in figure 3. (10 marks)

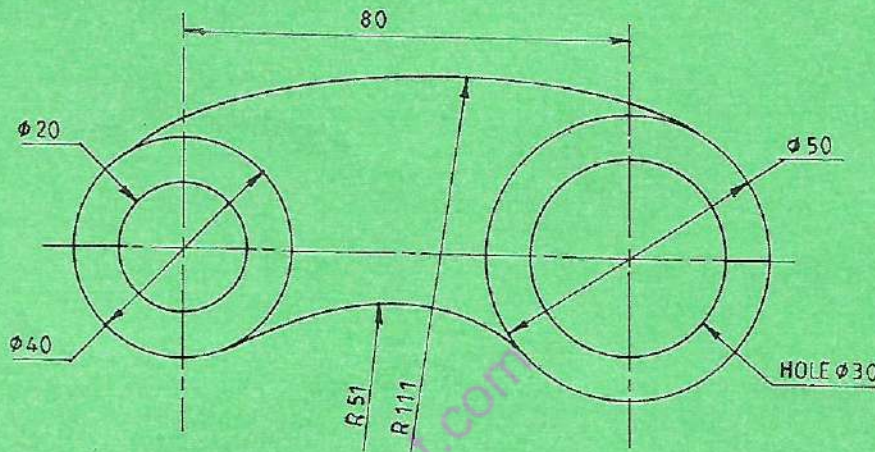


Fig. 3

- (b) Construct a heptagon inscribed in a circle of diameter 80 mm. (10 marks)
5. (a) (i) State the designation and size of drawing paper according to BS 308, ISO A series. (8 marks)
- (ii) List six types of information contained in a title block.  
 Name  
 Title
- (b) Using a concentric circle method, construct a horizontal ellipse with major and minor diameters as 90 mm and 50 mm respectively. (12 marks)

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