

1601/104
1602/104
TECHNICAL DRAWING
Oct./Nov. 2021
Time: 3 hours



THE KENYA NATIONAL EXAMINATIONS COUNCIL

**CRAFT CERTIFICATE IN ELECTRICAL AND ELECTRONIC TECHNOLOGY
(POWER OPTION)
(TELECOMMUNICATION OPTION)
MODULE I**

TECHNICAL DRAWING

3 hours

INSTRUCTIONS TO CANDIDATES

You should have the following for this examination:

Drawing instruments;

Computer installed with Auto CAD and electronic CAD software;

Printer;

Printing paper.

*Answer any **FIVE** of the following **EIGHT** questions in the answer booklet and drawing papers provided.*

Maximum marks for each part of a question are as indicated.

All dimensions are in millimetres.


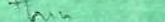

Candidates should answer the questions in English.

This paper consists of 8 printed pages.

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

1. (a) (i) On the drawing paper provided, draw a border line and the title block and on it write in printed form each of the following:
- (I) your name;
 - (II) index number;
 - (III) college name;
 - (IV) paper number.

(ii) Illustrate each of the following types of lines used in engineering drawings and print by hand the wordings:

- (I) border line; *thick* 
- (II) construction line; *thin* 
- (III) hidden details; *dot line* 
- (IV) centre lines;
- (V) dimension line.

(10 marks)

(b) Figure 1 shows a drawing. Using drawing instruments, draw the figure. (10 marks)

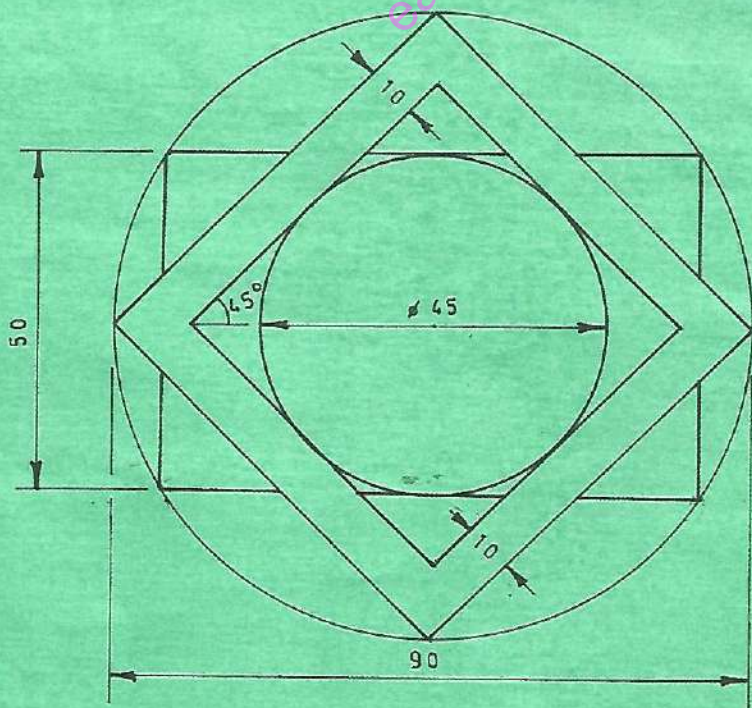


Fig. 1

2. Figure 2 shows front elevation of a truncated square based pyramid.

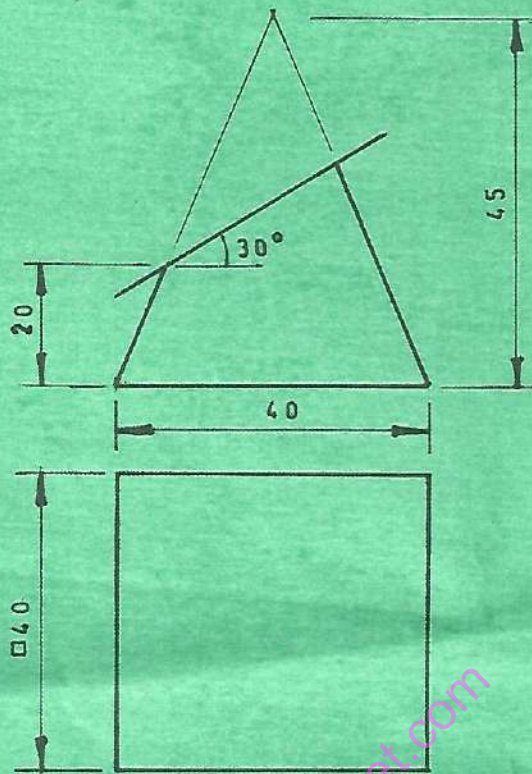


Fig.2

Copy the given views and complete the:

- plan;
- true shape;
- surface development of the truncated pyramid.

(20 marks)

3. Figure 3 shows views of an object drawn in first angle projection.

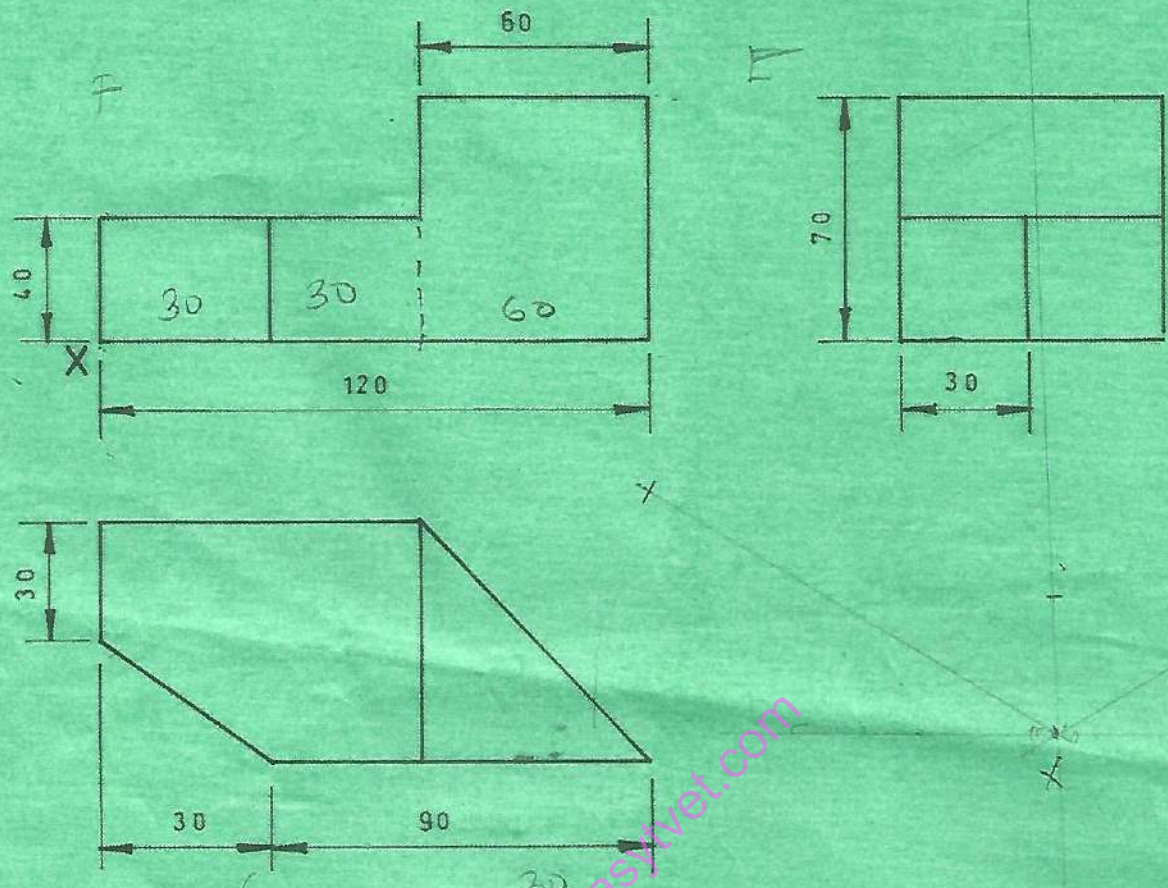


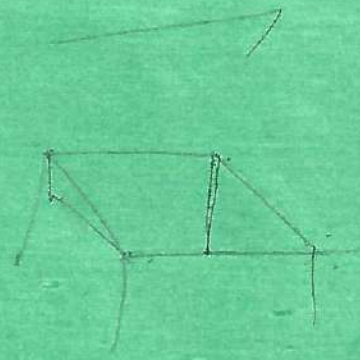
Fig. 3



- (a) Make an isometric view with point X as the lowest point.
- (b) Insert any **four** dimensions.

(20 marks)

4. Figure 4 shows a pictorial view of an object.



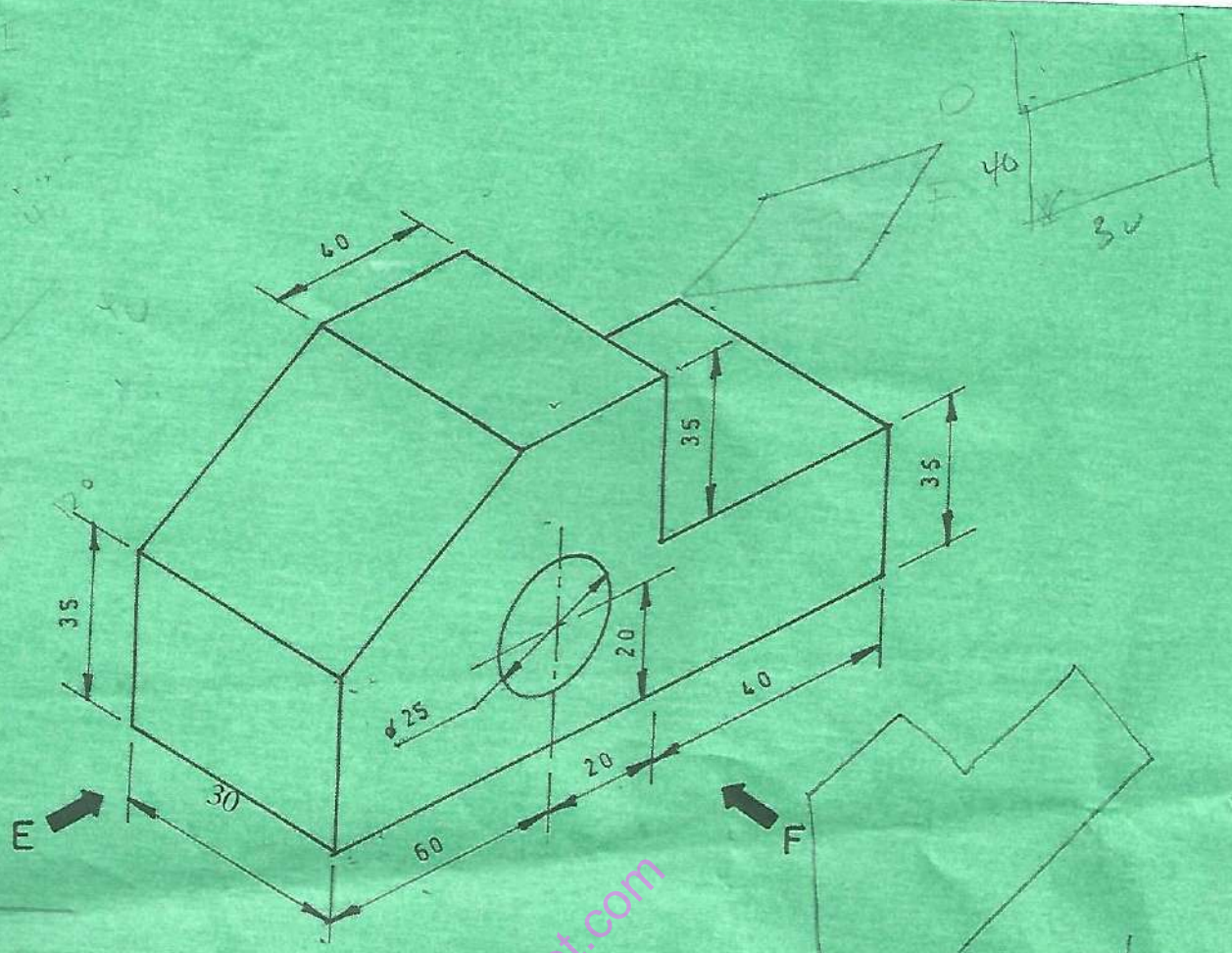


Fig.4

Draw full size in first angle projection each of the following views;

- (a) Front elevation as viewed in the direction of arrow 'F'.
- (b) End elevation as viewed in the direction of arrow 'E'.
- (c) Plan.

Insert any **three** dimensions;

(20 marks)

- 5. (a) Construct an ellipse of major axis 130 mm and minor axis 90 mm using concentric circles method; (10 marks)
- (b) Construct the involute to a square of sides 30 mm. (5 marks)
- (c) Construct a triangle whose perimeter is 120 mm and sides of ratio 3:4:5. (5 marks)

6.

(a) Figure 5 shows the electrical design of a one bedroom house.

score

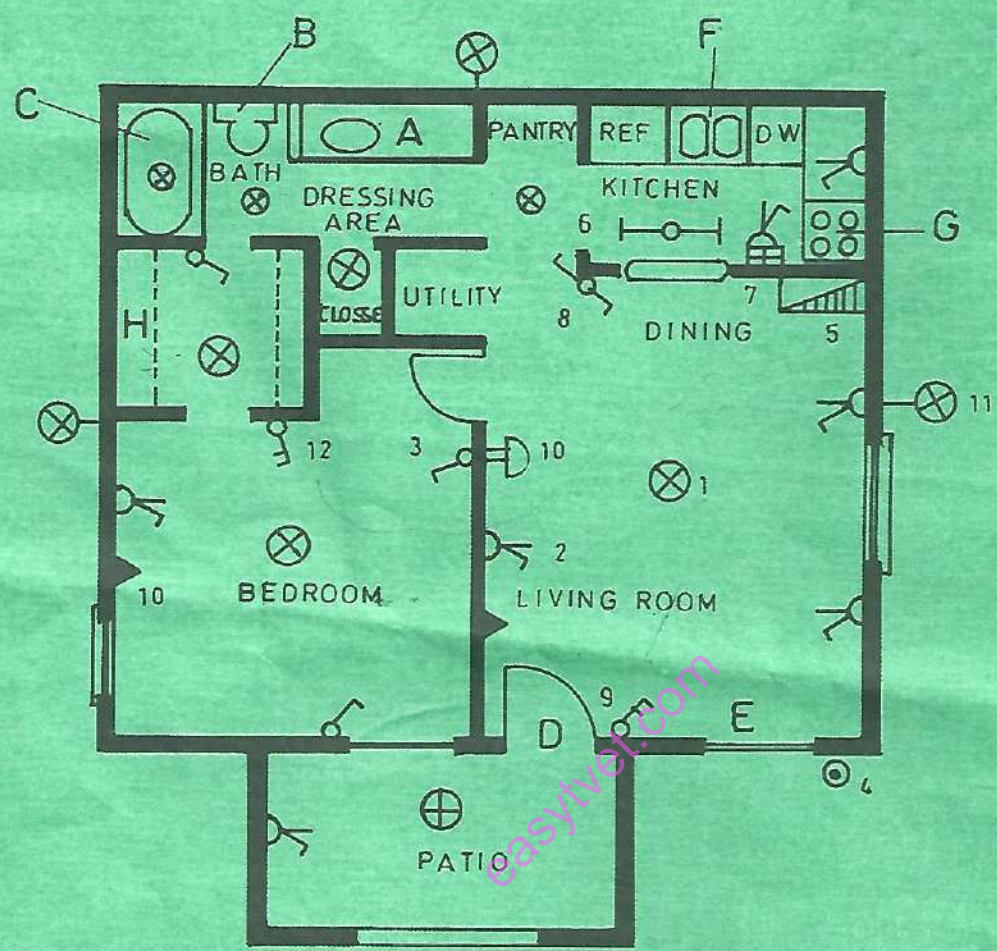


Fig. 5

Name the electrical symbols labelled 1 - 12.

- 1 Lamp
- 2 Socket outlet
- 3 one way one gang switch
- 4 flush button
- 5 Common Control Unit
- 6 Ring fluorescent lamp
- 7 (12 marks)
- 8 Two way one gang switch
- 9 one way two gang switch
- 10 Bell
- 11 wall lamp
- 12 one way two gang switch

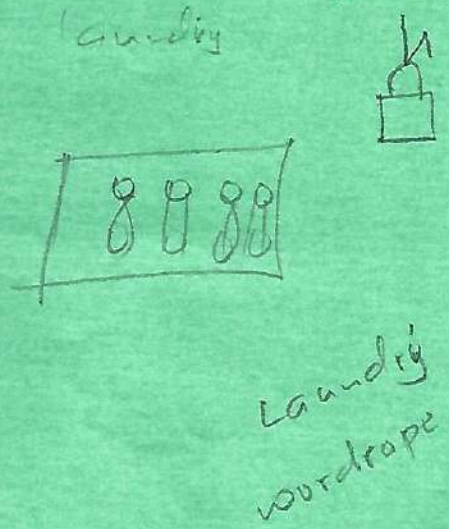
6 (b) book

Complete table 2 by naming the architectural symbols labelled A to H in Figure 5.

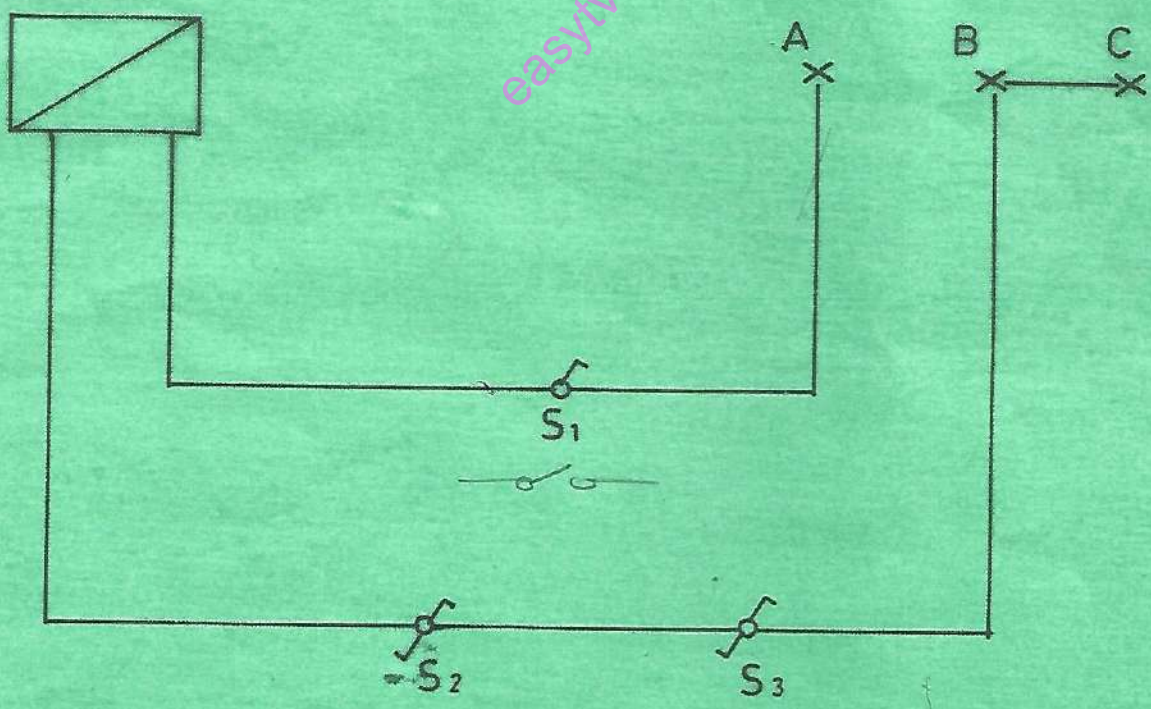
(8 marks)

Table 2

SYMBOL	NAME
A	
B	toilet
C	
D	Door
E	window
F	Sink
G	Cooker
H	



7 (a) Figure 6 shows the layout of two lighting circuits.



Draw the circuit diagram such that:

- (i) lamp A is controlled by switch S_1 ;
- (ii) lamp B and C are controlled by switch S_2 and S_3 .

(10 marks)

(b) Draw a circuit diagram of a regulated 12 V d.c power supply.

(10 marks)

8. Figure 7 shows an electronic circuit.

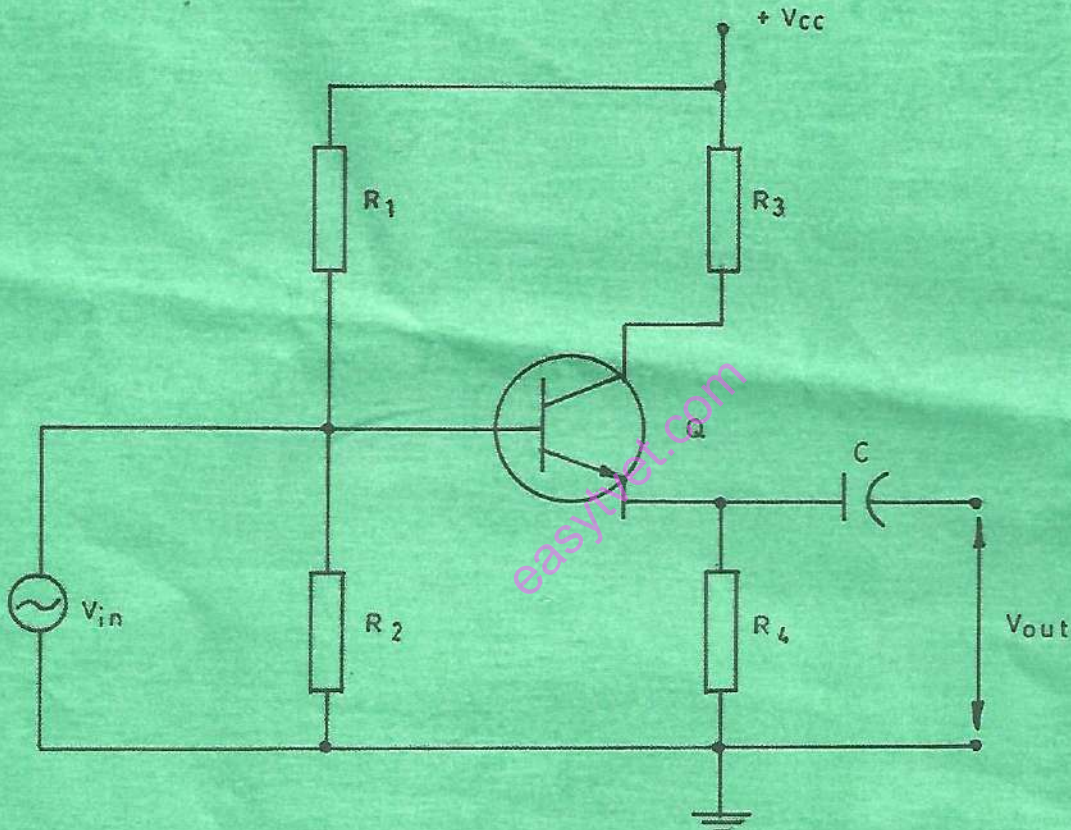


Fig.7

Using an appropriate computer software;

(a) draw the circuit; (10 marks)

(b) produce the PCB layout. (10 marks)

Print your work and hand it over to the examiner.

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