

THE UNITED REPUBLIC OF TANZANIA
NATIONAL EXAMINATIONS COUNCIL
CERTIFICATE OF SECONDARY EDUCATION EXAMINATION

097

MECHANICAL DRAUGHTING
(For Both School and Private Candidates)

Time: 3 Hours

Monday November 15, 2004 a.m.

Instructions

1. This paper consists of six (6) questions.
2. Answer four (4) questions including question number 1.
3. Question number 1 carries 40 marks while the rest carry 20 marks each.
4. Electronic calculators are not allowed in the examination room.
5. Cellular phones are not allowed in the examination room.
6. Write your Examination Number on every page of your answer booklet(s).

This paper consists of 4 printed pages.

1. A sketch and views of a LEVER BRACKET are given in figure 1. The pin fits into the hole in the bracket and held by an M 18 hexagon nut. Draw full size the following views of the assembled bracket, including the nut.

- A front elevation in direction of arrow X.
- A sectional end elevation on cutting plane A – A.
- A sectional plan on cutting plane B – B. Add title block and partslist.

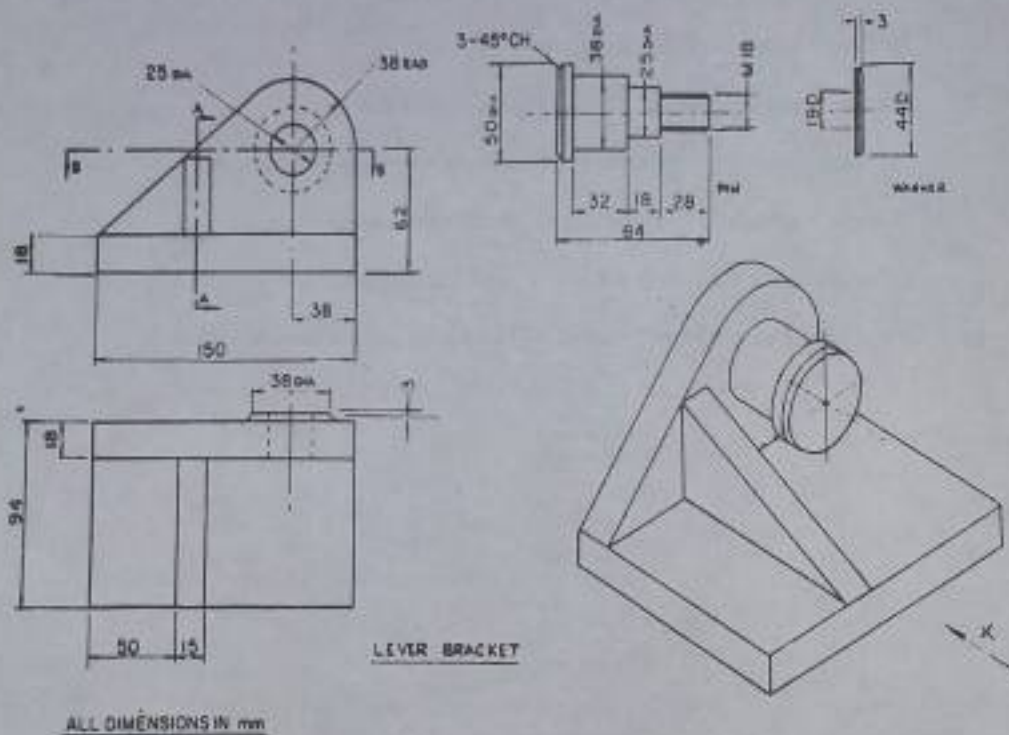


Fig. 1

2. Figure 2 shows an elevation and plan of an inclined triangular lamina in first angle projection. Draw the:

- Given views.
- True shape of the lamina by using the auxiliary method.

Show all the constructions clearly.

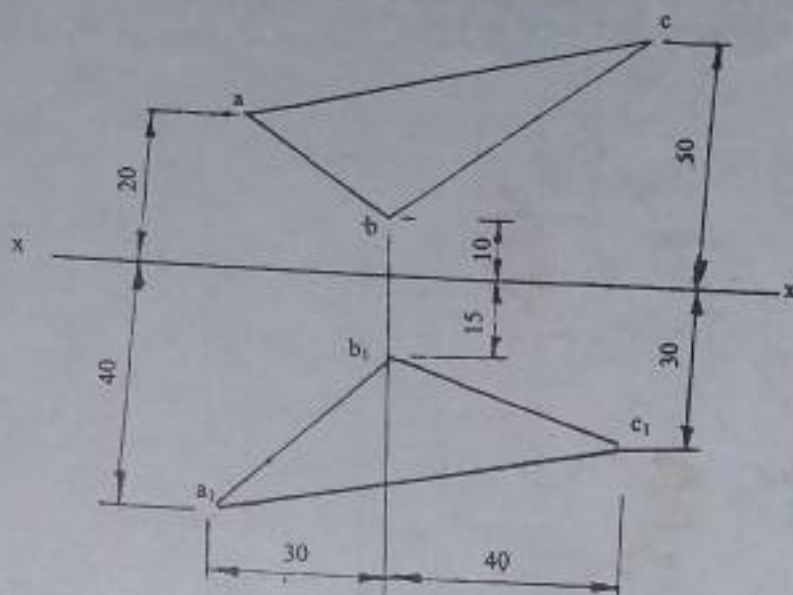


Fig. 2

3. Draw neatly the given figure 3 in isometric projection. Leave all the constructions.

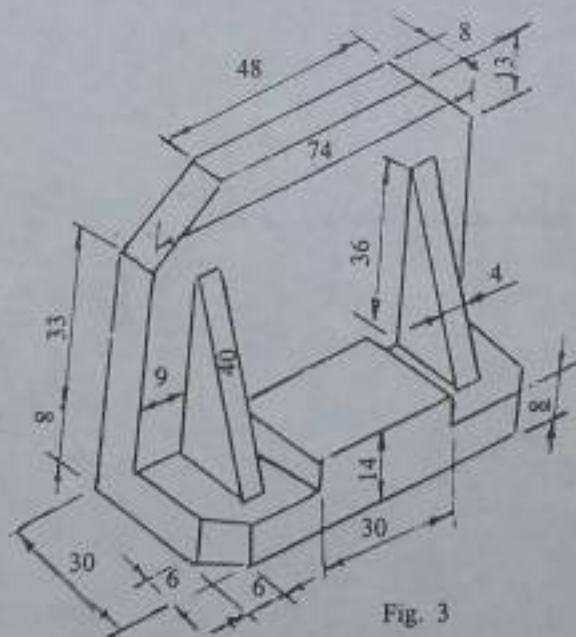


Fig. 3

4. Construct a regular pentagon of side 50 mm and from it construct a square equal in area to your constructed pentagon.

5. Figure 4 shows a piston and crank mechanism for a single cylinder engine. Plot the locus of point 'P' for one complete revolution of crank BC.

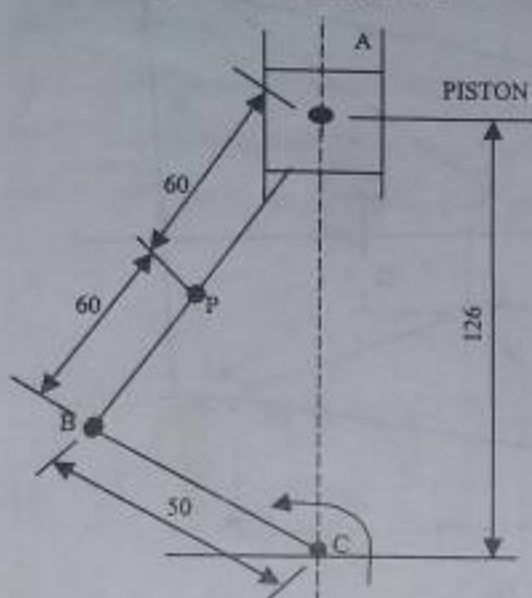


FIG. 4

6. (a) Give the correct meaning of the following abbreviations as used in mechanical engineering.
- PCD.
 - MATL.
 - CH HD.
 - A/F.
- (b) Using conventional representation, draw the following features.
- Straight knurling.
 - Diamond knurling.
 - Square on shaft.
- (c) Sketch neatly the following types of screws.
- Square.
 - Grub screw.
 - Allen head screw.