

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

Wednesday, 10th October 2012 p.m

Instructions

1. This paper consists of six (6) questions.
2. Answer question **number 1** and any other **three (3)** questions.
3. Question number 1 carries 40 marks while the others carry 20 marks each.
4. 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).



1. Two views of a shaft support are shown in third angle in Figure 1; draw in full size the following views.
- (a) A sectional front elevation, the cutting plane and direction of the required view being indicated by cutting plane X-X. (12.5 marks)
 - (b) An end elevation viewed from the left hand side of the front elevation. (10.5 marks)
 - (c) A plan, in projection with the front elevation. (9.5 marks)
- Use standard paper format and title block (7.5 marks)

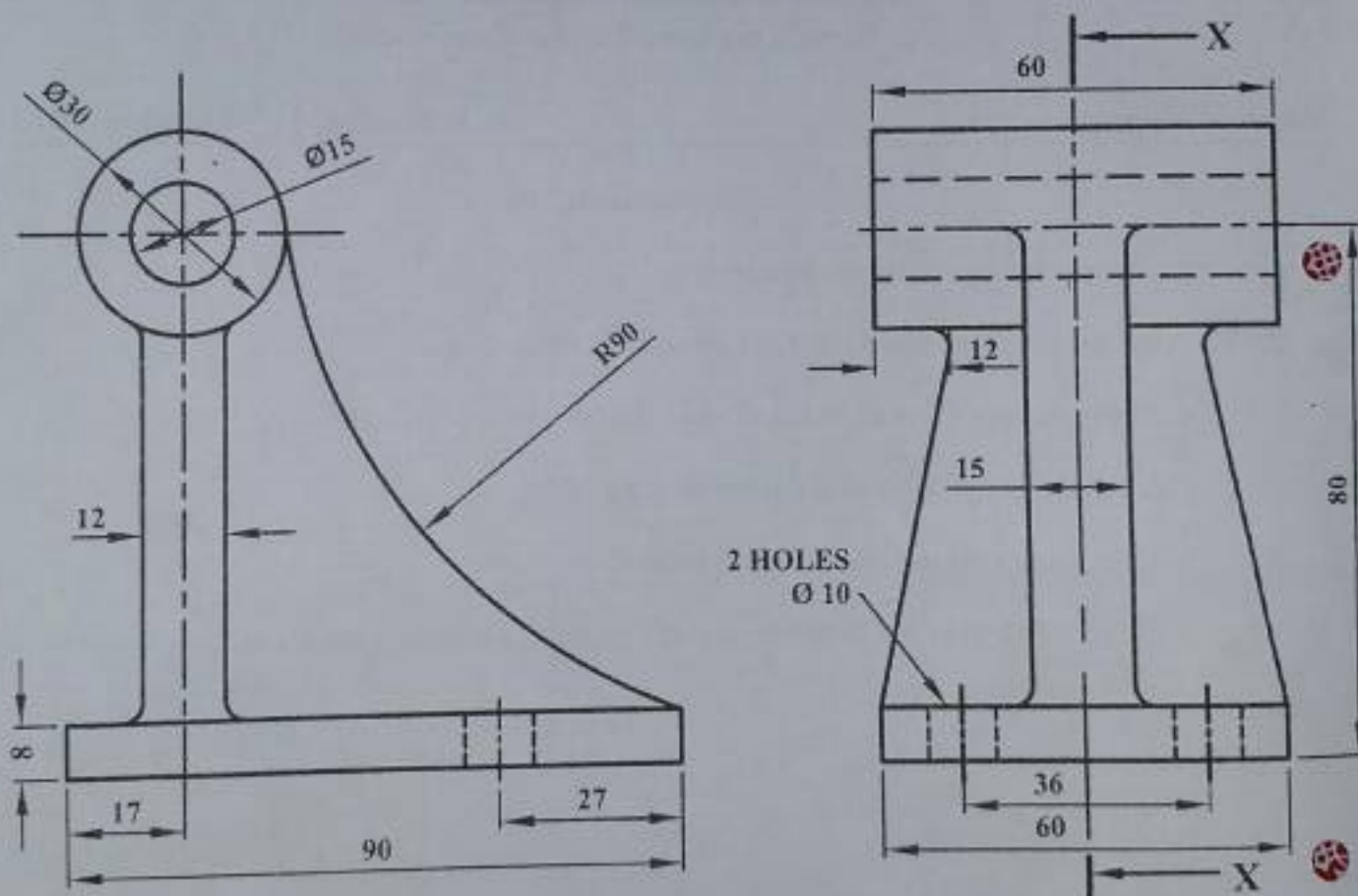


Figure 1

2. Figure 2 shows two orthographic views in first angle projection.
- (a) Draw the given views. (6 marks)
- (b) Project an auxiliary elevation as seen from the direction of arrow P. (14 marks)

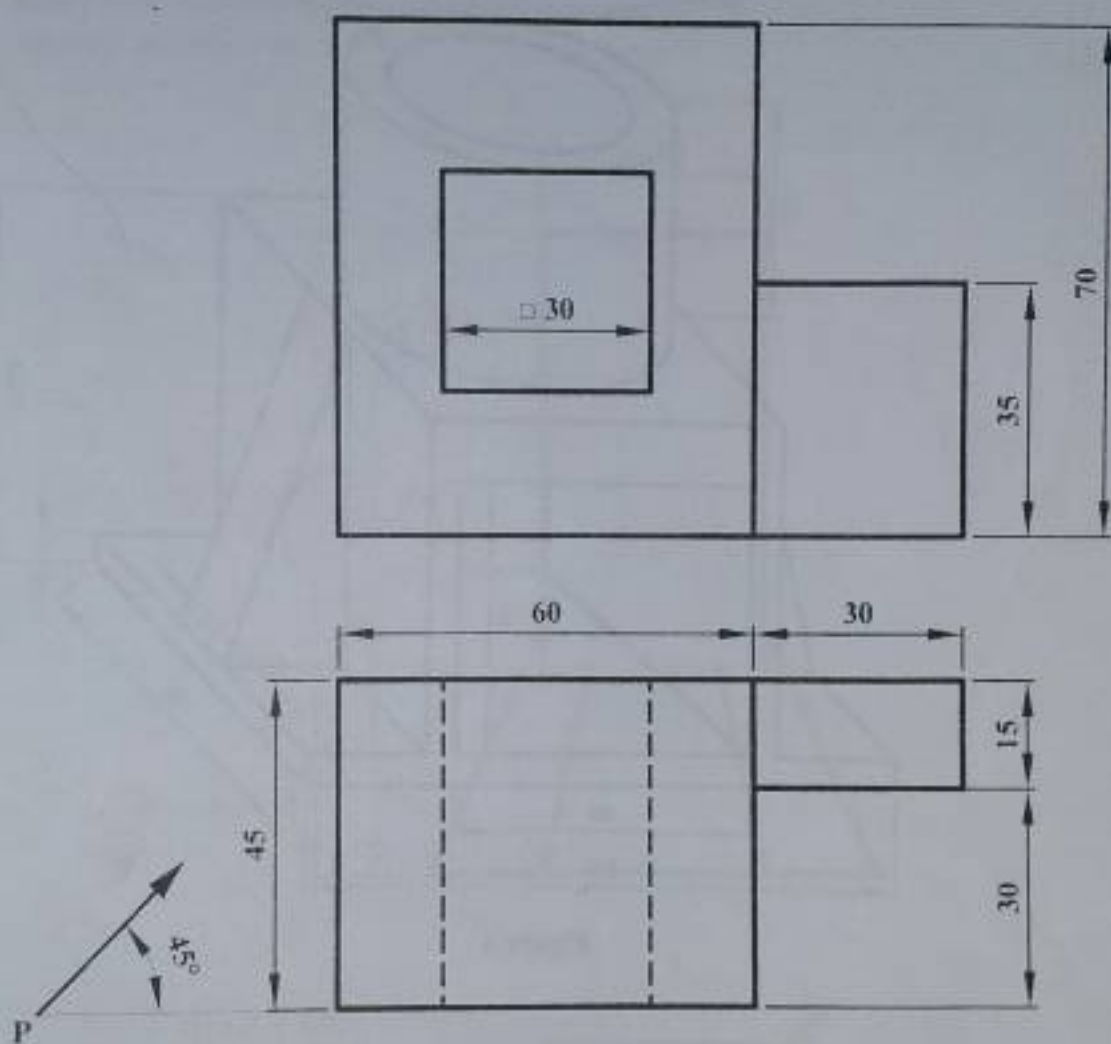


Figure 2

3. Draw the following diagram in oblique projection as shown in Figure 3.

(20 marks)

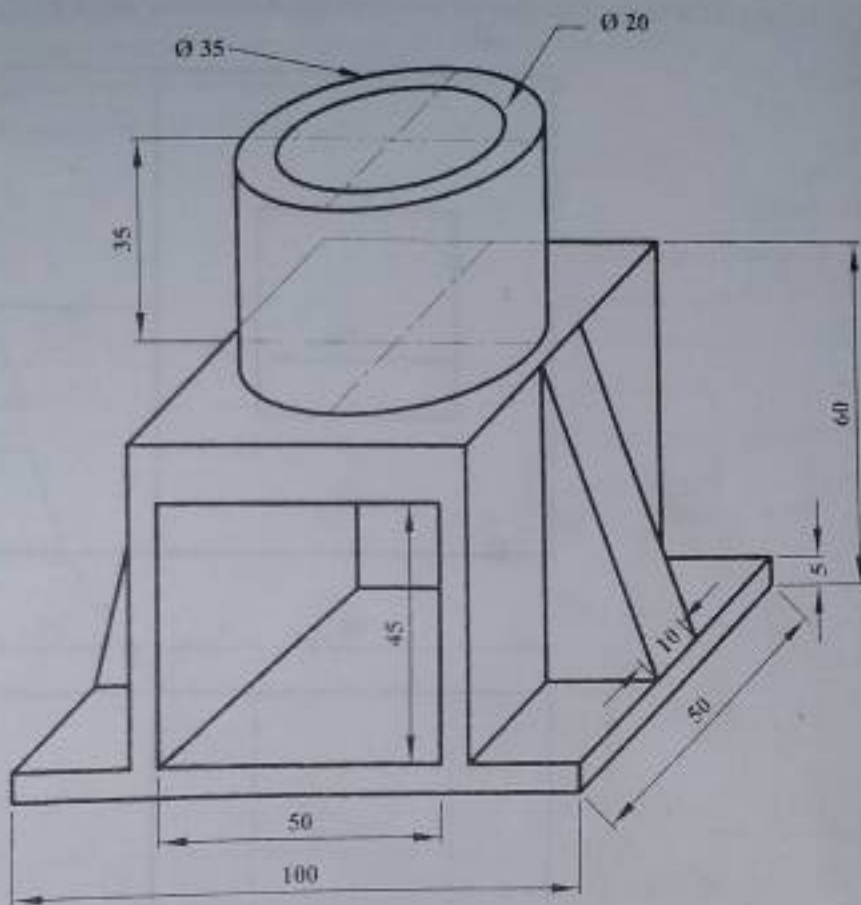
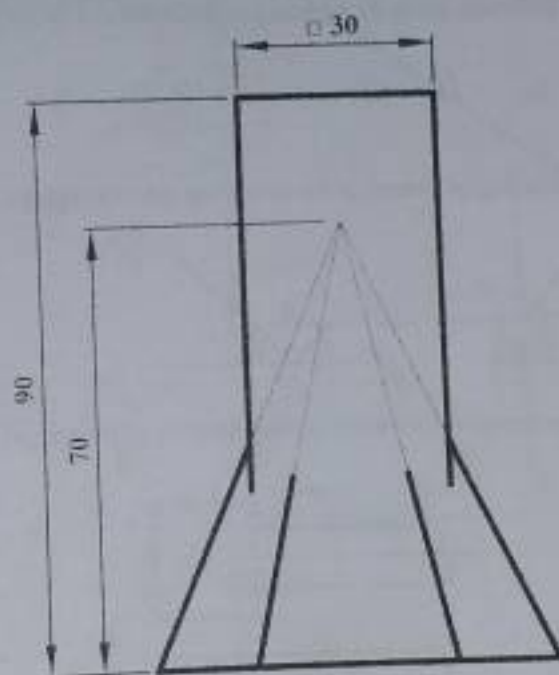


Figure 3

4. Figure 4 shows plan and elevation of a square prism interpenetrating centrally a hexagonal pyramid. Draw the
- (a) given views. (8 marks)
 - (b) complete lines of intersection in the front elevation. (7 marks)
 - (c) left hand end elevation. (5 marks)



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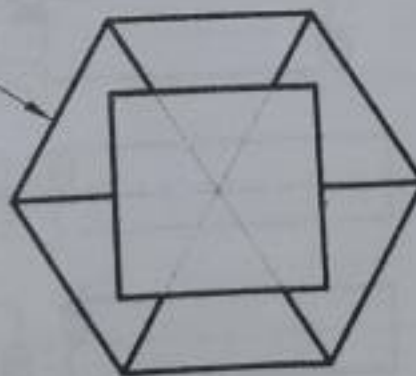


Figure 4

5. (a) Abbreviate the following words as used in mechanical draughting.
- | | | |
|----------------|------------------|-------------------|
| (i) Material | (ii) Diameter | (iii) Centre line |
| (iv) Chamfered | (v) Counter sunk | |

(5 marks)

- (b) Give the meaning of M12 X 26 as used in dimensioning process.

(1 mark)

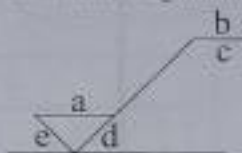
- (c) What do the following symbols represent in mechanical draughting?

(4 marks)



- (d) Provide the meaning of letters in the following machine symbol.

(5 marks)



- (e) Supply the representation meaning of the following conventional in mechanical draughting.

(5 marks)

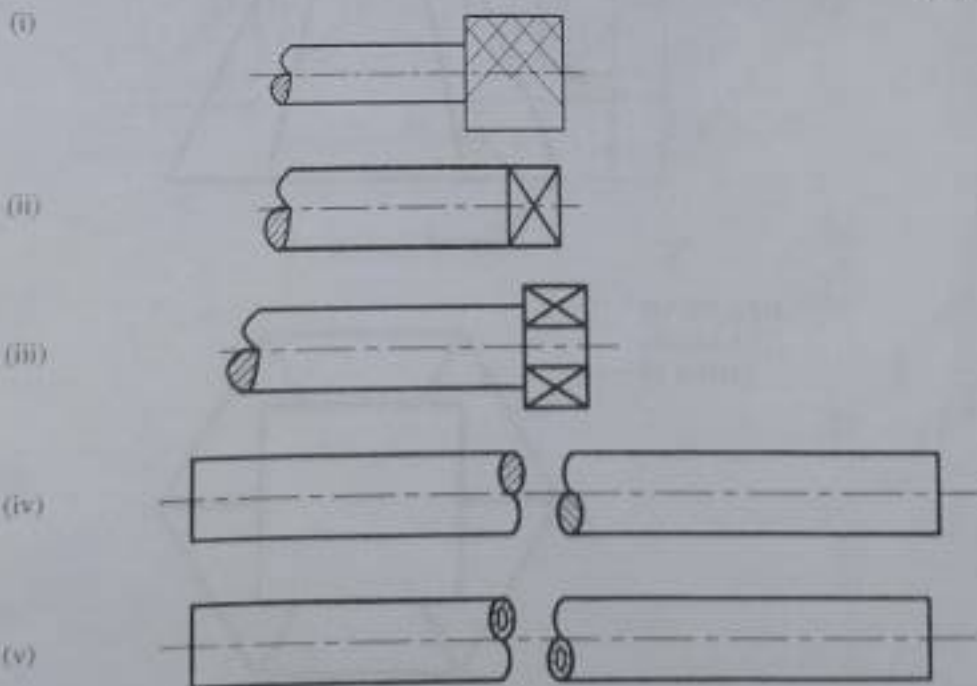


Figure 5

6. Figure 6 shows a linkwork where, the crank OA rotates clockwise about O at a constant speed. The link AB is attached to rod CB which swings about C. P is a point on the link AB. Plot the locus of P for one revolution of OA. (20 marks)

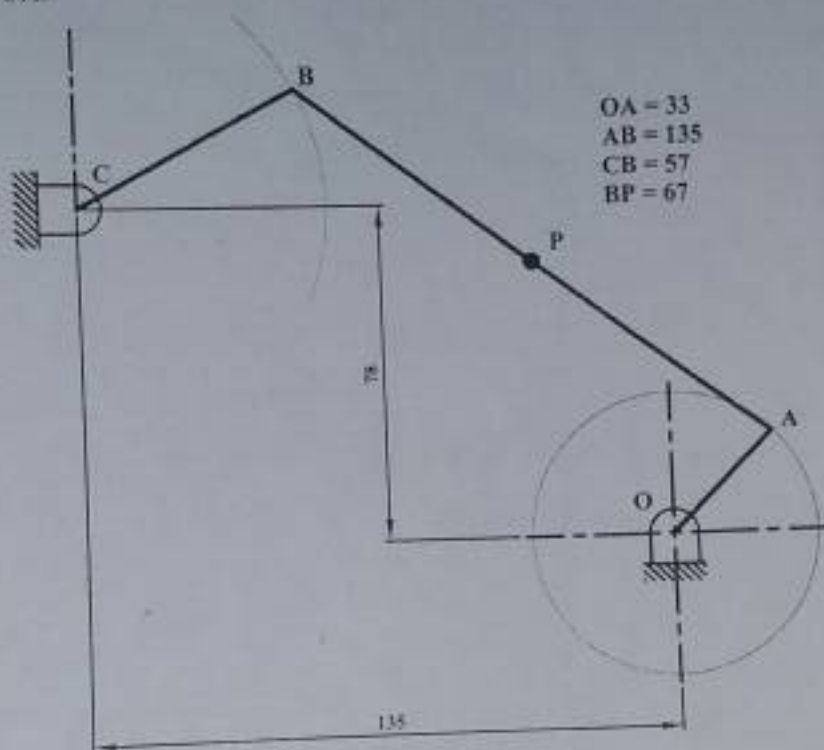


Figure 6