



THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE

Faculty of Engineering & Technology

DEPARTMENT OF CIVIL AND BUILDING ENGINEERING

DIPLOMA IN BUILDING AND CIVIL ENGINEERING

SEMESTER EXAMINATIONS

MAY 2010 SERIES

ENGINEERING DRAWING I

TIME: 3 HOURS

Instructions to Candidates

1. You should have the following for this examination:
 - Tee square
 - Set square
 - Drawing set
 - Drawing paper(s) size A2
 - Scale rule
2. This paper consists of **FIVE**.
3. Answer Question **ONE (Compulsory)** and any other **TWO** Questions.
4. Question **ONE** carries 30 marks while question 2, 3, 4 and 5 carry 20 marks each.
5. Maximum marks for each part of a question are as indicated.

Question ONE

- (a). Briefly explain any **THREE** uses of drawings in engineering. **(4½ Marks)**
- (b). Using the auxiliary circles method construct an ellipse whose major and minor axes measure 100mm and 60mm respectively. **(8 Marks)**
- (c). Construct a hyperbola within a rectangle measuring 100mm by 80mm with a transverse axis of 95mm. **(8 Marks)**
- (d). Figure 1 shows a wheel, 60mm in diameter, in contact with a flat surface. Draw the locus of the contact point 'P', on the wheel, as the wheel rolls without slipping for one complete convolution Name the locus. **(9½ Marks)**



Fig. 1

Question TWO

Figure 2 below shows a line diagram of a slider and crank mechanism. Rod AB is pin-jointed to crank BO at B. Crank BO is allowed to oscillate about center O. The slider A is constrained to move along groove XY while crank OB oscillate about centre O. Plot the locus of point P on the connecting rod AB as end A of the rod slides towards point X. **(20 Marks)**

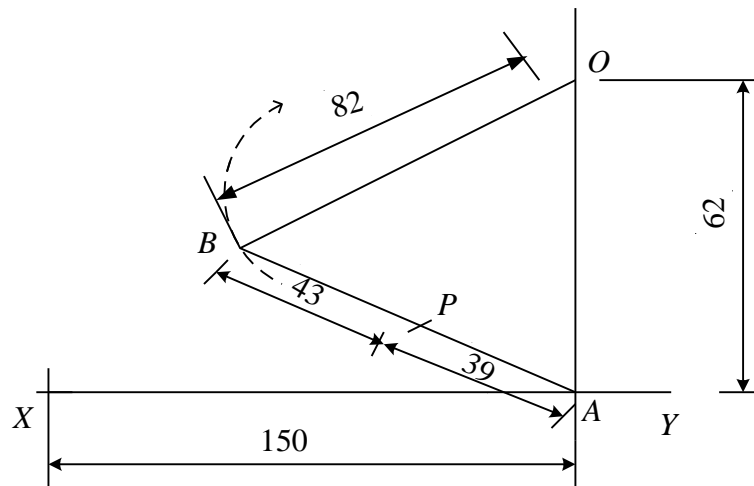


Fig. 2

Question THREE

Figure 3 shows a truncated right cone. In first angle projection draw:-

- (a). The given view
- (b). The plan
- (c). Elevation as seen in the direction of arrow P.
- (d). The true shape of the cut section. Name the shape produced.

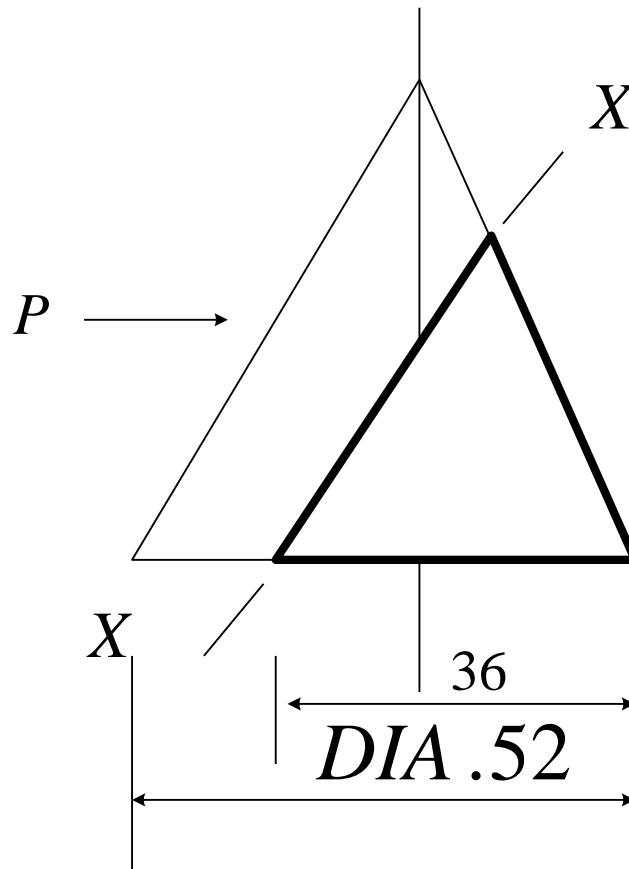


Fig. 3

Questions FOUR

P is a point moving such that its distance from a fixed point is equal to its perpendicular distance from a fixed straight line. Using 20, 25, 30, 40, 50, and 70 as distances from the fixed point, plot the locus of point P and name the curve so produced. **(20 Marks)**

Question FIVE

Figure 4 below shows a side elevation of a Truncated cylinder. In third angle projection draw;

- (a). The given view.
- (b). The plan
- (c). Elevation as seen in the direction of arrow Z.
- (d). The true shape of the cut section.

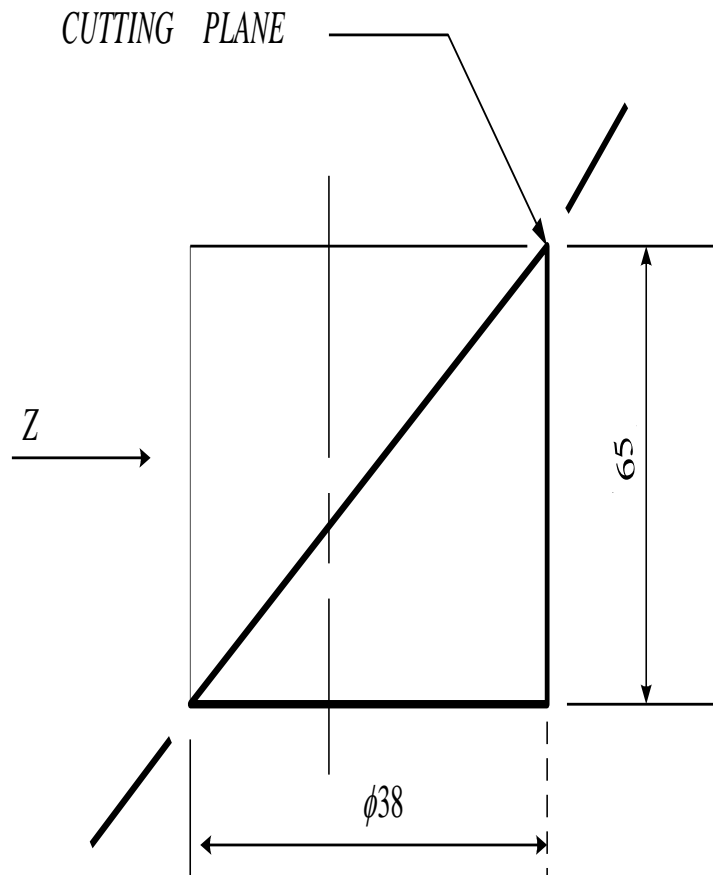


Fig. 4

(20 Marks)