



MACHAKOS UNIVERSITY

University Examinations 2016/2017

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF MECHANICAL AND MANUFACTURING ENGINEERING

**FIRST YEAR SECOND SEMESTER EXAMINATION FOR DIPLOMA IN
MECHANICAL ENGINEERING
ENGINEERING DRAWING II**

DATE: 5/6/2017

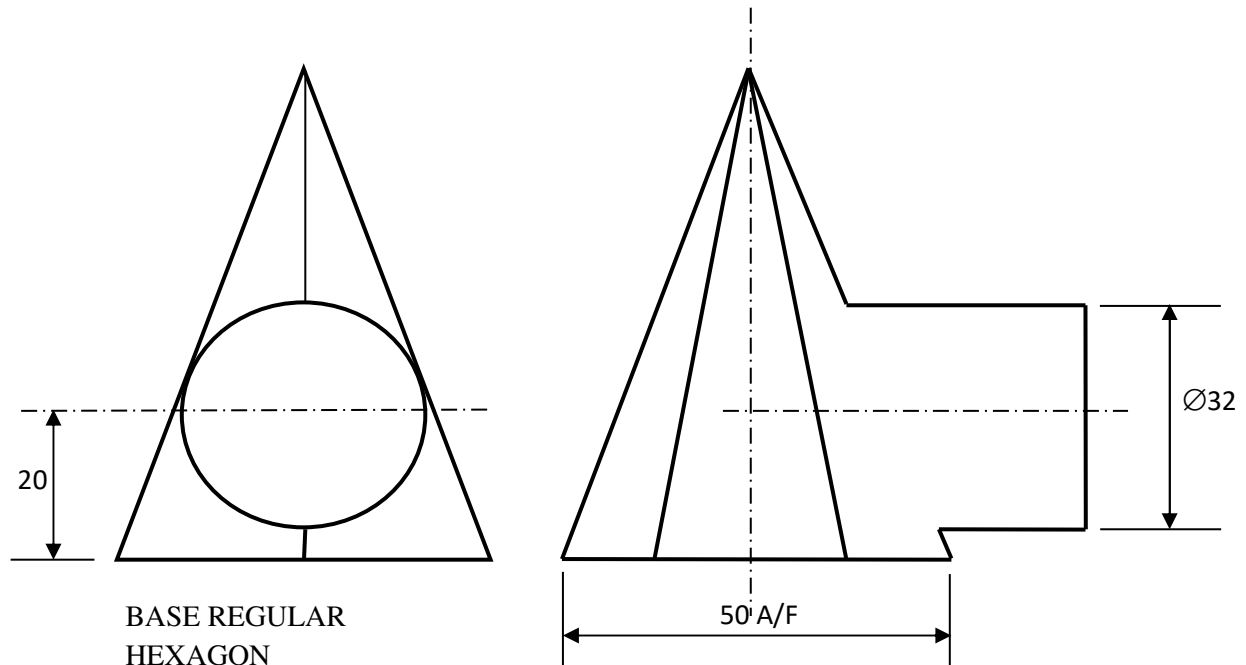
TIME: 8:30 – 10:30 AM

INSTRUCTIONS

- *This Examination contains two sections A and B*
- *Section A is compulsory*
- *Attempt any other two questions from section B*

SECTION A (COMPULSORY) – 30 MARKS

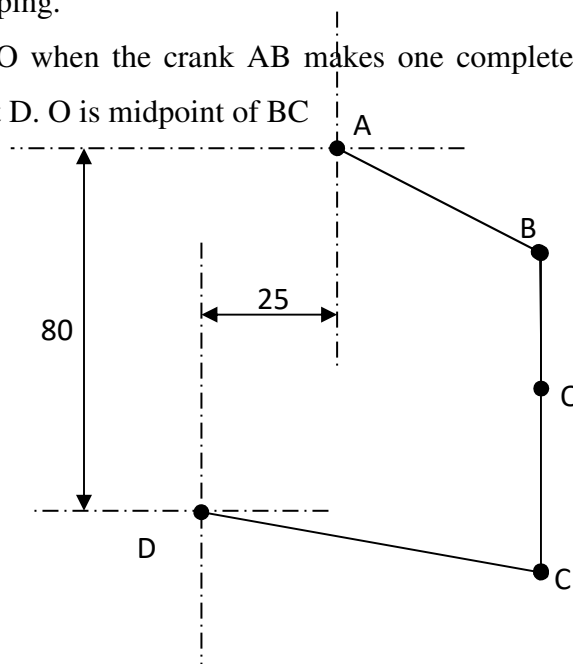
1. a) The drawing below shows the front elevation and end elevation of a hexagonal based pyramid and a cylinder. Draw these two views and a plan showing the curves of intersection in the elevation and plan. Show hidden edges.
b) Draw the development for the curved part of the cylinder.



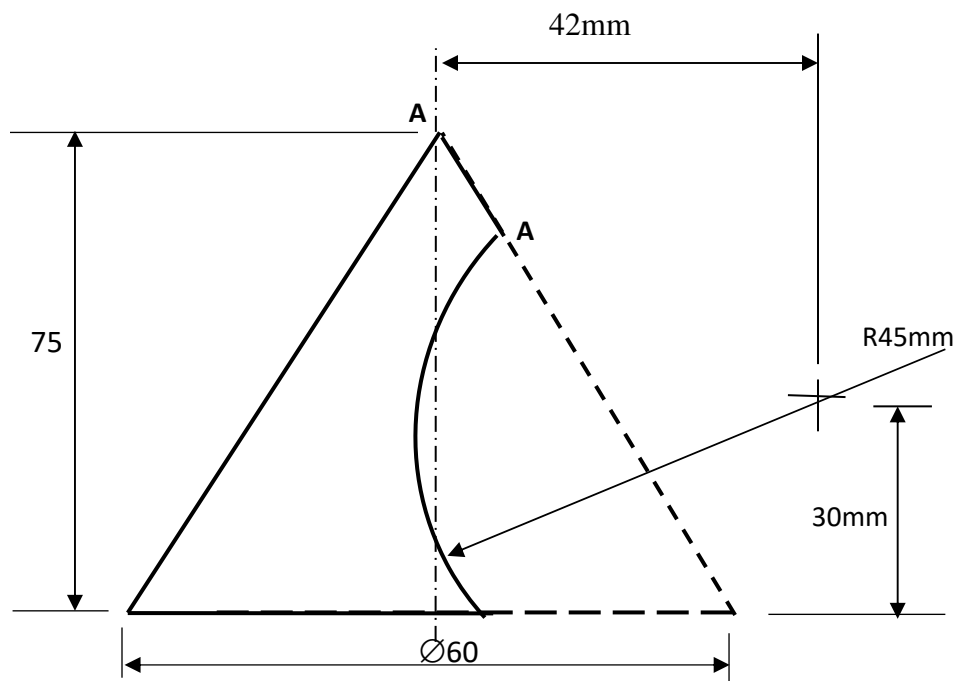
SECTION B: ATTEMPT ANY TWO QUESTIONS FROM THIS SECTION

2. A thin metal disc of diameter 50 mm revolves on the inner curved surface of a metal drum of diameter 300mm. Plot the locus of a point on the surface of the disc as it makes two revolutions without slipping. (20 marks)
3. Draw the locus of a point O when the crank AB makes one complete revolution. The crank DC reciprocates about D. O is midpoint of BC (20 marks)

AB = 60mm
BC = 80mm
CD = 75mm



4. The drawing shows an elevation of right circular cone made from sheet metal, from which a portion has been cut away by a cylindrical surface. Draw;
- The given elevation;
 - The development of the curved surface, taking AA as the joining line.
- The thickness of the metal may be neglected.



5. As an experiment a very low gear has been fitted to a bicycle. This gear allows the bicycle to move forward 50 mm for every 15 degrees rotation of the crank and pedal. These details are shown below
- Draw, half-full size, the crank and pedal in position as it rotates for every 50 mm forward motion of the bicycle up to a distance of 600 mm. The first forward position has been shown on the drawing.
 - Draw a smooth freehand curve through the positions of the pedal which you have plotted.
 - From your drawing find the angle of the crank OA to the horizontal when the bicycle has moved forward 255 mm.

