

P 710/P720/1
Geometrical and mechanical drawing
Geometrical and Building drawing
Paper 1
July/August
3 Hours



UGANDA MUSLIM TEACHERS' ASSOCIATION

UMTA JOINT MOCK EXAMINATIONS 2015

UGANDA ADVANCED CERTIFICATE OF EDUCATION

Technical Drawing

Paper one

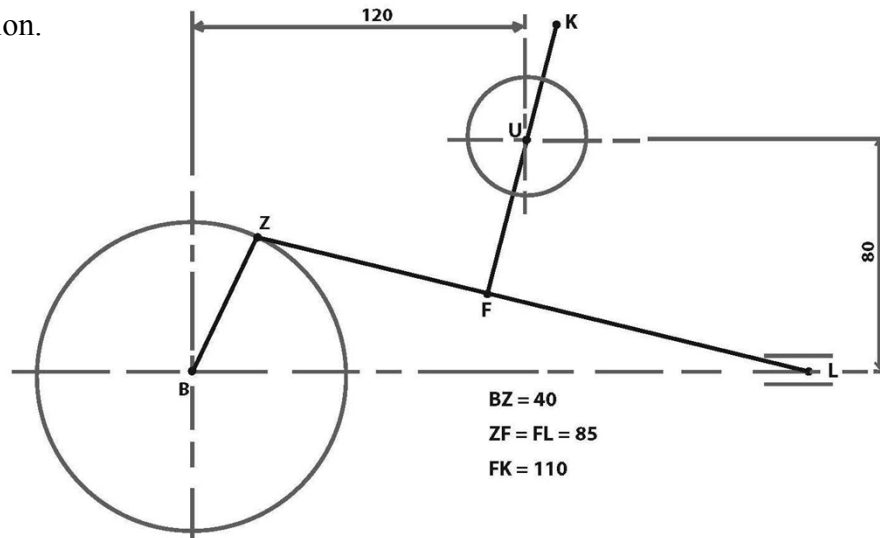
3 Hours

INSTRUCTION TO CANDIDATES:

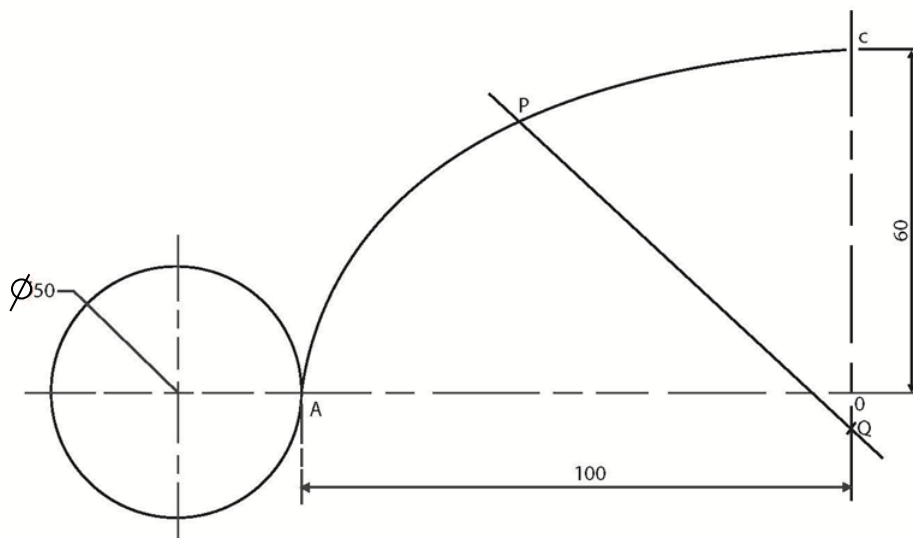
- *Attempt 5 questions, at least two from each of the sections A & B*
- *Unless otherwise stated, all dimensions are in millimeters*
- *Neatly and clearly show all construction lines*
- *Given figures are not drawn to scale*
- *Answers to all questions must be given dimensions*
- *All questions carry equal marks*

SECTION I

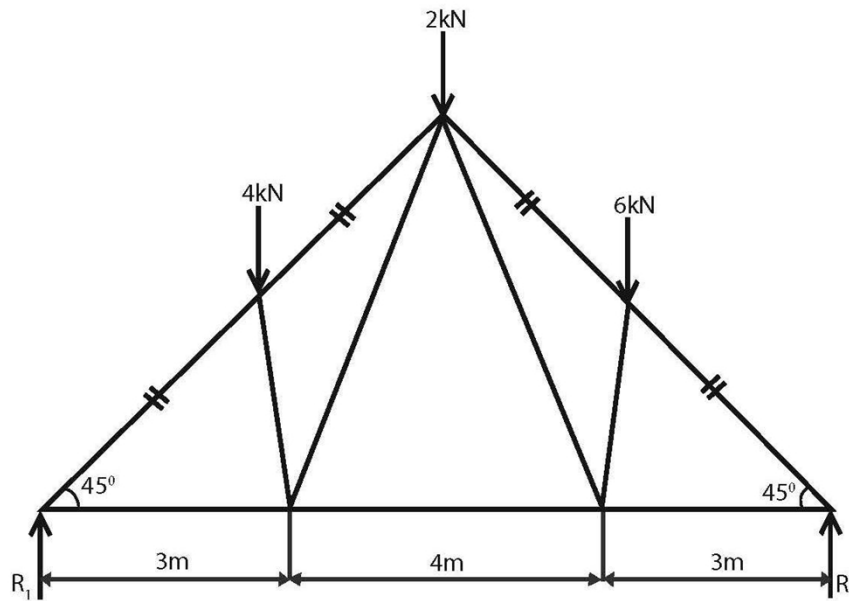
1. The figure shows a crank BZ which rotates about the centre B. A bar FK is attached to the rod ZL and is pin jointed at F, and guided in a block U which is free to rotate on a fixed central pin. Plot the locus of the point K, when crank BZ makes one complete revolution.



2. The figure below shows part of an ellipse. Find by construction at least seven points on the ellipse between A and C. At these points and by geometrical construction draw normals to the ellipse to intersect CO produced as shown by example PQ. Draw the locus of the mid-points of normals such as PQ. Draw the locus of the centre of the circle which rolls along AC without slipping.



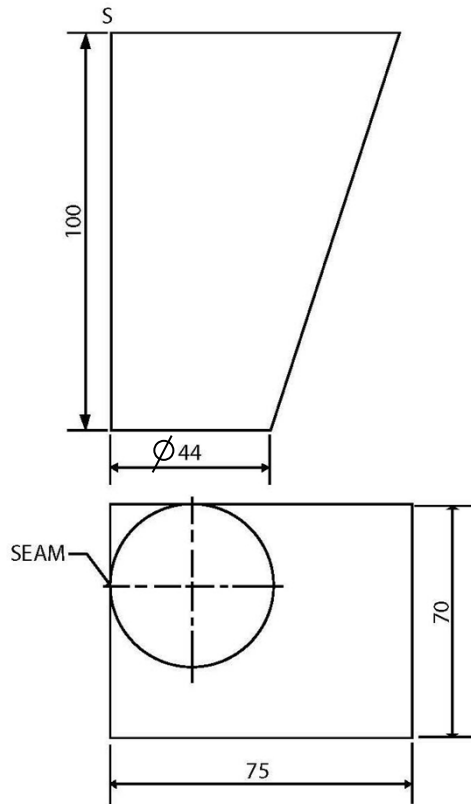
3. The figure below shows a pin jointed structure which is simply supported as shown. For the system of loading shown, determine graphically;
- The magnitudes of reactions R_1 and R_2
 - The magnitudes of the forces in each member of the structure stating whether the member is a tie or a strut.



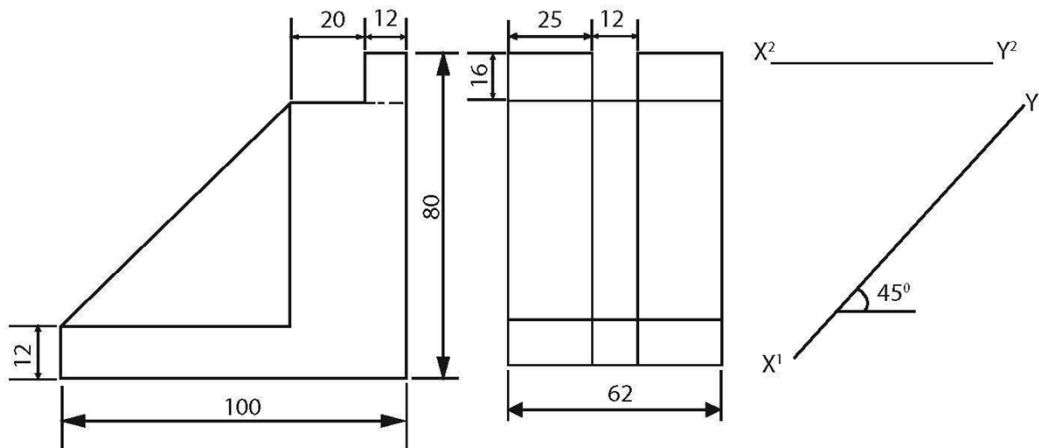
4. A radial cam rotating anti-clockwise is to operate an offset- flat follower giving it the following motion.
- $0^\circ - 180^\circ$ lift 36mm with uniform acceleration and retardation.
 - $180^\circ - 270^\circ$ dwell
 - $270^\circ - 360^\circ$ fall 36mm with simple harmonic motion
- Construct the cam profile if the follower is offset 22mm to the right of the vertical center line of the cam. The nearest approach of the follower to the horizontal centre line of the cam is 40mm and the cam shaft diameter is 32mm.

SECTION II

5. The figure below shows two views of a cowl to be made from thin sheet metal. Draw full size the given views and make a full development of cowl through the seam S.S.



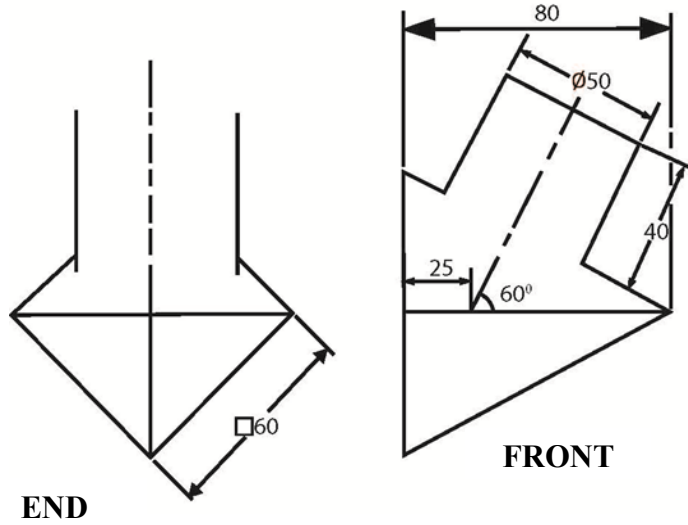
6. Shown in figure below are two views of a component. Draw full size the given views and project a view of the component on the plane X^1Y^1 and another view on the plane.



7. Two incomplete views of a cylinder intersecting with a square based pyramid are given in the figure below.

(a) Draw and complete them with the lines of intersection

(b) Project the complete plan view of the cylinder and pyramid.



8. The figure below shows a casting drawn in first angle projection. Draw the figure full size making A as the lowest corner.

