



# UNIVERSITY OF RUHUNA

Faculty of Engineering

End-Semester 1 Examination in Engineering: August 2018

Module Number: ME1201

Module Name: Engineering Drawing

[Three Hours]

[Answer all questions, each question carries 10 marks]

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- Q1. With reference to the object shown in Figure Q1, draw the following orthographic views using the Third Angle projection. (Note: all dimensions are in millimetres and you may assume any dimension not given)
- a) Sectional front view across the plane PQRS, looking in the direction of arrow A. [4.0 Marks]
  - b) Top view. [3.0 Marks]
  - c) Right side view. [3.0 Marks]
- Q2. Orthographic projections of an object drawn in the third angle projection are illustrated in Figure Q2. Use the isometric scale and draw the isometric view of the object looking in the direction shown by the arrows. (Note: all dimensions are in millimetres and you may assume any dimensions not given) [10.0 Marks]
- Q3. An object consists of a 100 mm diameter sphere joined with an 80 mm diameter cylinder as shown in the plan view of Figure Q3. The distance between the centre of the sphere and the axis of the cylinder is 20 mm. Draw the given plan view and front view of the object looking from the direction of arrow "A", indicating the complete interpenetration curve between the spherical and cylindrical surfaces. [10.0 Marks]
- Q4. a) A circle of diameter 60 mm is rolling on the outside surface of another circle of radius 100 mm, without any slip. If the starting point on rolling circle is P, draw the moving path of P for one complete revolution, showing all the construction lines. Also, name the trajectory. [5.0 Marks]
- b) Draw the locus of a point P moving so that the ratio of its distance from a fixed point F to its distance from a fixed vertical straight line DD' is 3:5. Here, the point F is at a distance of 120 mm from DD'. Also, draw a tangent and a normal to a point Q, 60 mm below the major axis of the locus. Show all the construction lines where appropriate. [5.0 Marks]

Q5. A hexagonal pyramid having a base with a 30 mm side and a 60 mm long axis rests on the horizontal plane (HP) with a side of the base parallel to the vertical plane (VP). It is cut by two surfaces as shown by the front view given in Figure Q5. Here, one of the cutting surfaces is a plane 45° inclined to the HP and perpendicular to the VP. The other cutting surface is cylindrical.

- a) Draw the development of the pyramid after removing the two cut parts. [7.0 Marks]
- b) Draw the plan view of the remaining part of the pyramid. [3.0 Marks]

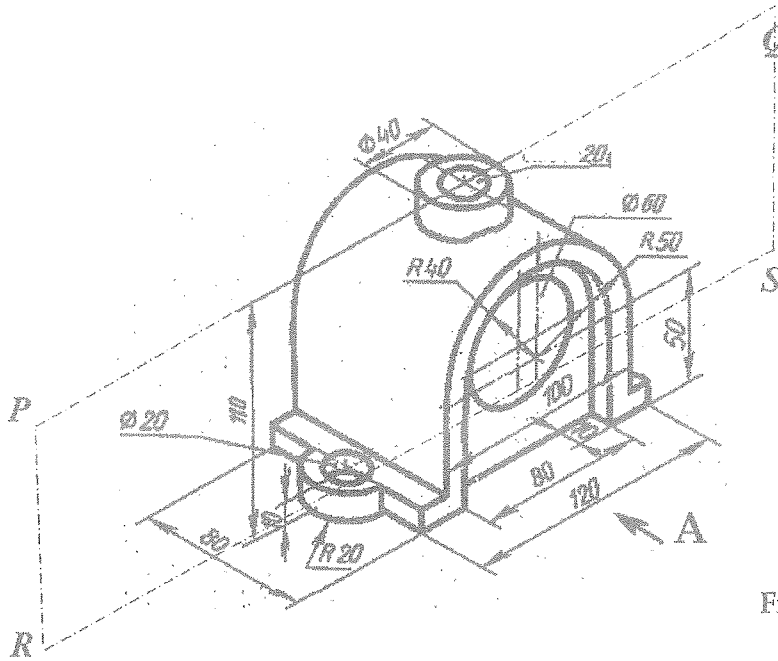


Figure Q1

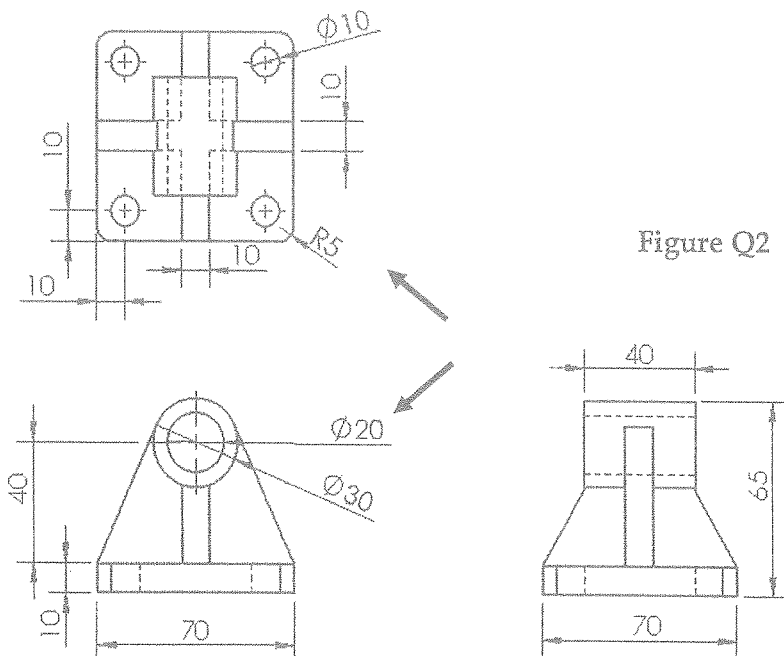


Figure Q2

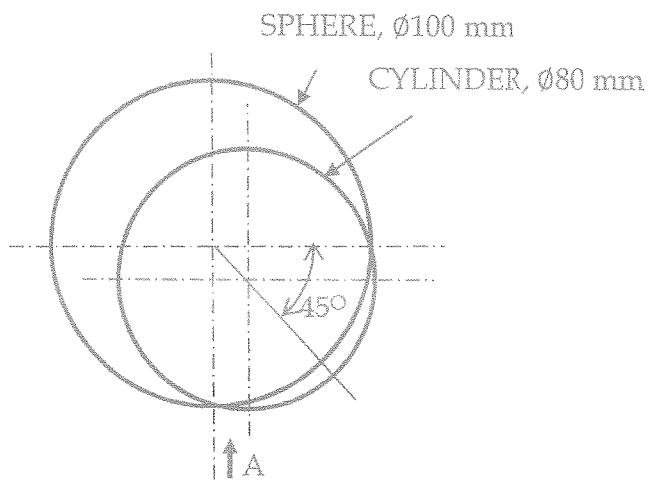


Figure Q3

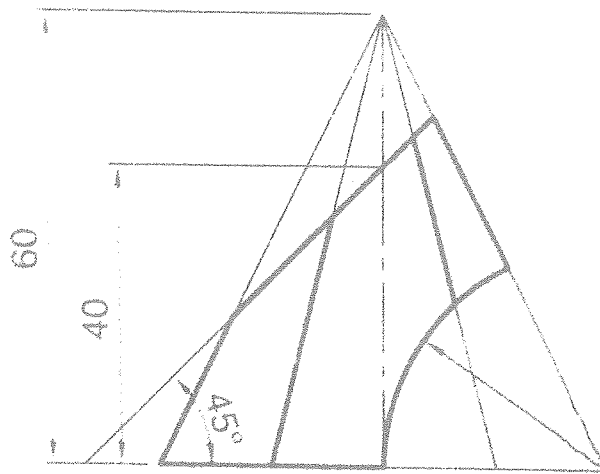


Figure Q5