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Question Paper Code : 57020

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2014.

First Semester

Mechanical Engineering

GE 6152 — ENGINEERING GRAPHICS

(Common to all branches)

(Regulation 2013)

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

$(5 \times 20 = 100)$

1.   (a)   A circus man rides a motor-bike inside a globe of 6 m diameter. The motor-bike has the wheel of 1 m diameter. Draw the locus of the point on the circumference of the motor-bike wheel for one complete revolution. Adopt suitable scale.

Or

(b)   Draw the front top and side views of the component shown in fig 1(b), by free hand.

fig 1 (b)

2.   (a)   A straight line AB of 50 mm length has its end point A 15 mm above the HP and the end B 20 mm in front of the V.P. The top view of the line is 40 mm long and the elevation is 35 mm long. Draw the projections of the line and find the true inclinations of the line with VP and the HP.

Or

(b)   An isosceles triangular plate ABC has its base edge AB 60 mm long and on the ground inclined at 30° to VP. The length of the altitude of the plate is 80 mm. The plate is placed so that the edge AC lies in a plane perpendicular to both the HP and VP. Draw the projections of the plate and find out the angles of inclination of the plate with the HP and VP.

3. (a) A hexagonal pyramid of base side 20 mm and axis height 70 mm has one of the corners of its base in the VP and the axis is inclined at 45° to the VP and parallel to HP. Draw the front view and top view of the solid.

Or

(b) A bucket in the form of the frustum of a cone has diameters 300 mm and 750 mm at the bottom and the top respectively. The bucket height is 800 mm. The bucket is filled with water and then tilted through 40°. Draw the projections showing water surface in both the views. Remember that the axis of the bucket is parallel to the VP.

4. (a) A rectangular pyramid of base 30 mm × 50 mm and axis 50 mm is resting on its base with the longer edge of the base parallel to the VP. It is cut by a section plane perpendicular to the VP, inclined at 30° to the HP and passing through a point on the axis 20 mm from the apex. Draw the front view, the sectional top view and the true shape of such a section of the pyramid.

Or

(b) Draw the development of the lateral surface of a right regular hexagonal prism of 25 mm base edge and 60 mm height. An ant moves on its surface from a corner on the base to the diametrically opposite corner on the top face, by the shortest route along the front side. Sketch the path in the elevation.

5. (a) A sphere of 18 mm is placed centrally over a hexagonal slab of side 24 mm and thickness 25 mm. Draw the isometric view of the combination.

Or

(b) Draw the perspective view of a rectangular prism of 80 cm × 48 cm × 36 cm size, lying on its 80 cm × 48 cm rectangular face on the ground plane, with a vertical edge touching the picture plane and the end faces inclined at 60° with picture plane. The station point is 80 cm in front of the picture plane, 64 cm above the ground plane and it lies in a central plane, which passes through the centre prism.

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