

B.TECH. DEGREE EXAMINATION, MAY 2014**First and Second Semesters**

EN 010 105—ENGINEERING GRAPHICS

(New Scheme—2010 Admission onwards)

(Regular/Improvement/Supplementary)

[Common for AN, AU, CS, IT, ME, PO, CH AND ST Branches]

Time : Three Hours

Maximum : 100 Marks

*Answer all questions.**Each full question carries 20 marks.**Retain all the construction lines. Drawing sheets will be supplied.*

1. A stone is thrown from the top of a building of 6.m. height to just pass over a tree of 9.m. height. The distance between the building and tree is 3m. Find the distance to the point where the stone hits the ground. Assume parabolic path for the stone.

Or

2. Draw a left handed involute of a hexagon of 20 mm side and draw a tangent and a normal at any point P on the involute.
3. A square lamina ABCD of 30 mm. side rests on the corner C such that the diagonal AC appears as at 30° to the VP in the top view. The two sides BC and CD containing the corner C make equal inclination with the HP. The surface of the lamina makes 45° with HP. Draw its projections.

Or

4. Draw the projections of a straight line PQ, 100 mm. long, inclined at 45° to HP and 30° to VP. The end P is in HP and the end Q is in VP. Find the shortest distance between the line PQ and the line of intersection of HP and VP.
5. A regular pentagonal pyramid side of base 40 mm. and axis 80 mm. is freely suspended from a corner of its base. Draw the projection of the pyramid when the axis parallel to the profile plane. Find inclination of the axis with HP and VP.

Or

6. A hexagonal pyramid edge of base 40 mm. and axis 80 mm. rests with its base on HP and an edge of the base inclined at 30° to VP. A section plane inclined at 40° to VP and perpendicular to HP passes through the pyramid at a distance of 8 mm. from the axis and in front of it. Draw the sectional front view and the true shape of section.

Turn over

7. A frustum of a cone base 60 mm. diameter, top 36 mm. diameter and height 70 mm. is standing vertically on HP. A hole of 30 mm. diameter is drilled through the cone such that the axis of the circular hole is perpendicular to VP and bisects the height of the frustum. Draw the development of the lateral surface of the frustum of the cone with the hole.

Or

8. A hexagonal based prism of base edge 30 mm. and axis height 80 mm. is resting with one of its rectangular faces on HP. A cylinder of diameter 30 mm. and height 40 mm. rests centrally with its base on the top rectangular face of the prism. Draw the isometric projection for the combination of solids.
9. A rectangular prism of base 30 mm. \times 50 mm and height 30 mm. is resting on its base on the ground with a vertical touching PP. One of the vertical face containing this edge makes 40° with the PP. The edge touching the PP is 20 mm. to the left of the observer and the station point is 70 mm. from the PP. Take the horizon plane 80 mm. above the ground. Draw the perspective view of the object.

Or

10. A vertical square prism, base 50 mm side, has its faces equally inclined to VP. It is completely penetrated by another square prism of base 30 mm. side, the axis of which is parallel to both VP and HP and is 6 mm. away from the axis of the vertical prism. The faces of the horizontal prism are equally inclined to the VP. Draw the projections of the solids showing lines of intersection. Assume length of both prisms to be 100 mm.

(5 \times 20 = 100 marks)