

Reg. No. :

**Question Paper Code : 90699**

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2022.

First Semester

Civil Engineering

GE 8152 — ENGINEERING GRAPHICS

(Common to all Branches)

(Regulations 2017)

Time : Three hours

Maximum : 100 marks

Note : Blank answer Booklet consisting of A3 drawing sheets is to be supplied to the students.

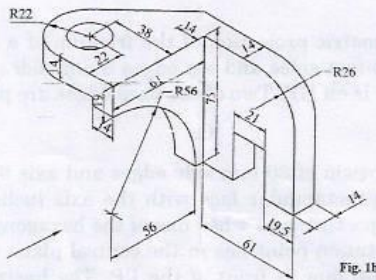
Answer ALL questions (5 × 20 = 100)

1. (a) A bullet is fired from the ground level at an angle  $60^\circ$  to the horizontal. The bullet hits the target at a point 80 m from its point of firing. Trace the path of the bullet using any method and by taking a suitable scale.

Or

- (b) For the object shown in Fig. 1b, draw free hand sketching of

- (i) front view (6)  
(ii) top view and (7)  
(iii) right hand side view (7)



Note: All dimensions are in 'mm'

2. (a) A line AB of length 70 mm has its end A at the intersection of both the reference planes. The line is inclined at  $45^\circ$  with HP and  $30^\circ$  with VP. Draw the projections of the line and find its apparent inclinations with respect to the principal planes. (20)

Or

- (b) A regular hexagonal lamina of 30 mm sides rests on HP on one of its sides. The side which is on HP makes  $60^\circ$  to the VP and the surface of the lamina is inclined to HP at  $45^\circ$ . Draw the front view and top view of the lamina in its final position.

3. (a) A pentagonal pyramid of base edges 30 mm and axis 70 mm long is tilted about one of its base edges lying on VP such that the triangular face passing through this edge is perpendicular to VP and the axis is parallel to HP. Draw its projections.

Or

- (b) Draw the top and front views of a right circular cylinder of base 45 mm diameter and axis 60 mm long rests on HP with its axis inclined at  $30^\circ$  to it.

4. (a) A right square pyramid of 30 mm side base and axis 70 mm long has its square end on VP such that its sides are equally inclined to HP. An inclined section plane, perpendicular to VP and inclined at  $40^\circ$  to HP cuts the pyramid at a distance of 7.5 mm from the axis. Draw the sectional top view and the true shape of the section if the larger portion of the solid is retained.

Or

- (b) A pentagonal prism of side of base 25 mm and height 65 mm is resting on the HP on its base with a face parallel to the VP. It is cut by two planes: one perpendicular to the VP, inclined at  $50^\circ$  to the HP, passing through the right extreme corner of the top face, and the other also perpendicular to the VP but in the form of a circular arc of radius 25 mm with the bottom right corner as its centre. Draw the development of the lateral surface of the portion of the solid entrapped between these two cutting planes.

5. (a) Draw the isometric projection of the frustum of a hexagonal pyramid of base edges 20 mm sides and top edges 8 mm sides and axis 55 mm long when its base is on HP. Two of the base edges are parallel to the VP.

Or

- (b) A hexagonal prism of 30 mm side edges and axis 60 mm long lies on the ground on its rectangular face with the axis inclined at  $30^\circ$  to the PP. Draw its perspective view when one of the hexagonal end corners touches the PP. The station point lies in the central plane which is bisecting the axis and is 160 mm in front of the PP. The horizon level is at 70 mm height. Use vanishing point method.