Total No. of Printed Pages:3

**F.E. Semester-II (Revised Course 2016-17)**
**EXAMINATION AUGUST 2021**
**Engineering Graphics**

**[Duration : Two Hours]** **[Total Marks : 60]**

**Instructions:**
1. Answer THREE FULL QUESTIONS with ONE QUESTION FROM EACH PART.
2. Missing data, if any may be suitable assumed
3. Figures to right indicate full marks.

**Part-A**

Q.1 a) A shot is discharge from the ground level at an inclination of $50^0$ to the ground which is assumed to be horizontal. The shot returns to the ground at a point 90m from the point of discharge. Trace the path of the shot. Choose suitable scale. 10

b) The projections of line AB which is in the first quadrant are perpendicular to xy line. The end A is 20 mm from both the reference planes HP & VP. End B is 60 mm from HP and 70 mm from VP. Determine its true length and true inclinations with HP and VP. 10

Q.2 a) A plate in the form of isosceles triangle, having base 40 mm and height 55 mm is resting on one of its edges in HP. It is inclined to HP such that the top view is seen as an equilateral triangle of 40 mm side. Draw the projection and measure its inclination with HP. 10

b) An object 'O' is placed 1.5m above the ground and in the centre of a room 5mX4mX 3m high. Determine graphically its distance from one of the corners between the roof and two adjacent walls. 10

Q.3 a) A thin regular hexagonal plate of side 30 mm is resting on its corner in HP such that the surface of the plate makes an angle of $45^0$ to HP and the diagonal passing through this corner makes an angle of $40^0$ to VP. Draw the projections of the plate. 10

b) A regular hexagonal prism of base side 30 mm and height 75 mm is resting on the HP on one if its base edge such that its axis makes an angle of $40^0$ to the HP and the edge of the base on which it is resting on makes an angle of $60^0$ to the VP. Draw its projections. 10

**Part B**

Q.4 a) A right regular square pyramid, edge of the base 40 mm and height 60 mm is resting on its base in the HP with one of its base edges perpendicular to the VP. A section plane perpendicular to the VP and inclined to the HP cuts the pyramid in such a way that the true shape of the section is a trapezium whose parallel sides measure 32 mm and 16 mm. Draw the front view, sectional top view and true shape of the section. Also determine the inclination of the cutting plane with the HP. 10



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b) A right circular cone, diameter of base 50mm and height 60 mm, rests on its base on HP. A section plane perpendicular to VP and inclined to HP at $40^0$ cuts the cone bisecting its axis. Draw the projection of truncated cone and develop its lateral surface. 10

Q.5 A right regular equilateral triangular pyramid is having base 50 mm side and axis 70 mm long. It is resting on its base on the HP with one of its edges perpendicular to the VP, It is cut by a section plane, perpendicular to the VP and inclined at $50^0$ to the HP bisecting the axis above the base. Draw the FV, sectional TV, true shape of the section and development of the lateral portion of remaining part of the pyramid. 20

Q.6 a) Figure FIG 6A shows pictorial view. Draw the following views using first angle projection method. 10

i. Front view looking in direction of arrow

ii. Top view

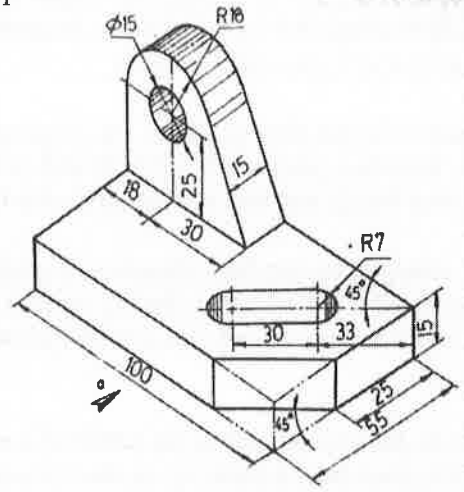


FIG. 6A

b) Two orthographic views are given in Fig. 6B below. Draw an isometric view. 10

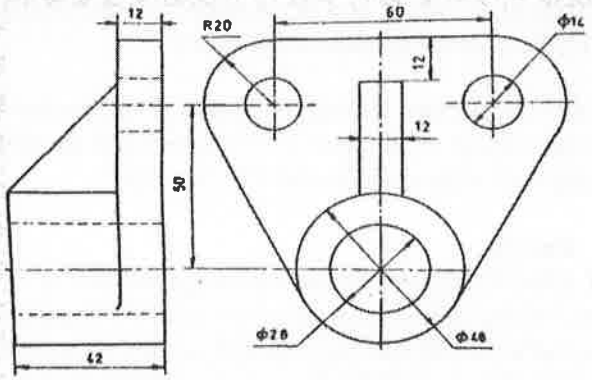


FIG. 6B

## Part-C

Q.7 a) One end of an inelastic thread of 150 mm length is attached to one corner of a regular hexagonal disc having the length of side of 25 mm. Draw the curve traced out by the other end of the thread when it is completely wound along the periphery of the hexagonal disc, keeping the thread always tight. Name the curve. 10

b) FIG. 7B shows the pictorial view. Draw the following views using first angle projection method. 10

i. Sectional front view taking section along A-A

ii. Top view

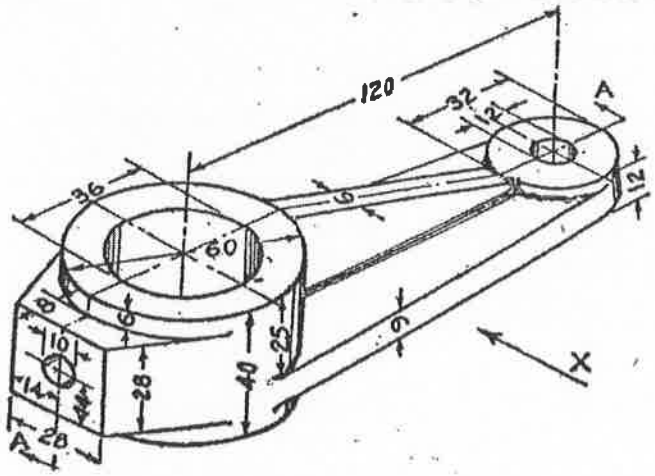


**FIG. 7B**

Q.8 a) A right circular cylinder, diameter of base circle 60 mm and length of axis 70 mm, rests on the HP on its base rim such that its axis is inclined at $30^0$ to the HP and the top view of the axis is inclined at $60^0$ to the VP. Draw its projections. 10

b) FIG. 8B shows two orthographic views. Draw an isometric view. 10

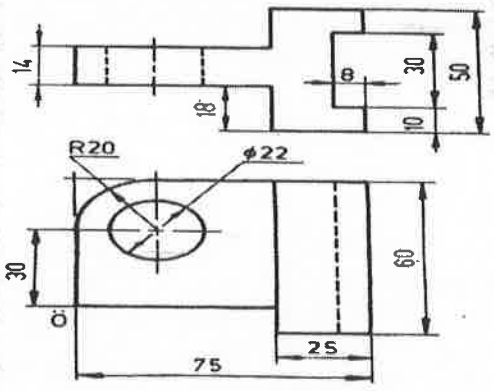


**FIG. 8B**