Reg. No. : | | | | | | | | | | | |

Question Paper Code : Q 2718

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2009.

Annual Pattern — First Year

Aeronautical Engineering

GE 1 X 01 — ENGINEERING GRAPHICS

(Common to all Branches)

(Regulation 2004)

Time : Three hours Maximum : 100 marks

Answer ALL questions in A3 size drawing sheet book provided.

Use appropriate scale if necessary, to fit the solution with in A3 size.

(5 × 20 = 100)

1. (a) Draw an involute of a circle of 40 mm diameter. Also ; draw a normal and a tangent to it at a point 100 mm from the center of the circle.

Or

(b) Draw the following views of the machine element shown in fig.1 :

(i) Top view (7)

(ii) Front view (7)

(iii) Right side view. (6)

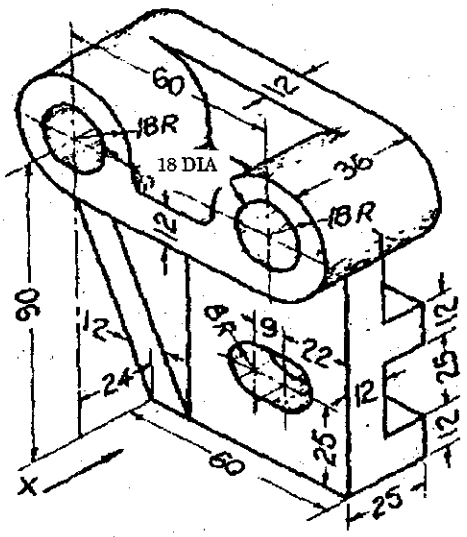

Fig. 1.

(All dimensions are in mm)

2. (a) The top view of a line AB makes an angle of 30° with the horizontal and has a length of 100 mm. The end B is in the HP and A is in the VP and 65 mm above the HP. Draw the projections of the line and find its true length and true inclinations with the reference planes. Also show its traces.

Or

(b) A pentagon of side 30 mm rests on the ground on one of its corners with the sides containing the corner being equally inclined to the ground. The side opposite to the corner on which it rest is inclined at 30° to the VP and is parallel to the HP. The surface of the pentagon makes 50° with the ground. Draw the top and front views of the pentagon.

3. (a) A hexagonal pyramid side of base 25 mm, axis 50 mm long lies with one of its triangular faces on the HP and its axis is parallel to the VP. Draw its projections.

Or

(b) A cone of base diameter 50 mm and altitude 60 mm rest on its base on the HP. It is cut by a plane perpendicular to the VP and parallel to one of the extreme generators, 10 mm away from it. Draw the sectional top view and the true shape of the section.

4. (a) A square pyramid of base side 30 mm and axis 60 mm rest on its base on the ground with one of the sides of the base inclined at 30° to the VP. A string is wound round the surfaces of the pyramid starting from left extreme point on the base and ending at the same point. Find the shortest length of the string required. Also trace the path of the string in the front and top views.

Or

(b) A cylinder of 50 mm diameter and axis 65 mm long is standing vertically on its base on HP. It is penetrated by a square prism of 25 mm side and 90 mm length, such that the faces are equally inclined to HP. The axes of the solids intersect at right angles. Draw the development of the lateral surfaces of the intersection of the prism and cylinder.

5. (a) A cylinder of 60 mm diameter and 70 mm height stands on HP. A section plane perpendicular to VP and inclined at an angle of 50° to HP cuts the cylinder and passes through a point on the axis at a height of 50 mm above the base. Draw the isometric projection of the truncated portion of the cylinder, when the cut surface is clearly visible to the observer.

Or

(b) A hexagonal prism of base side 20 mm and axis length 50 mm rests on the ground plane on one of its rectangular faces with its axis inclined at 30° to the picture plane. A corner of the base is touching the PP. The station point is 60 mm in front of the PP and lies in a central plane that bisects the axis. The station point is 40 mm above the ground plane. Draw the perspective view of the prism.
