B.E.POWER. ENGG. 1ST YR. 2nd SEM SEMESTER EXAM -2017

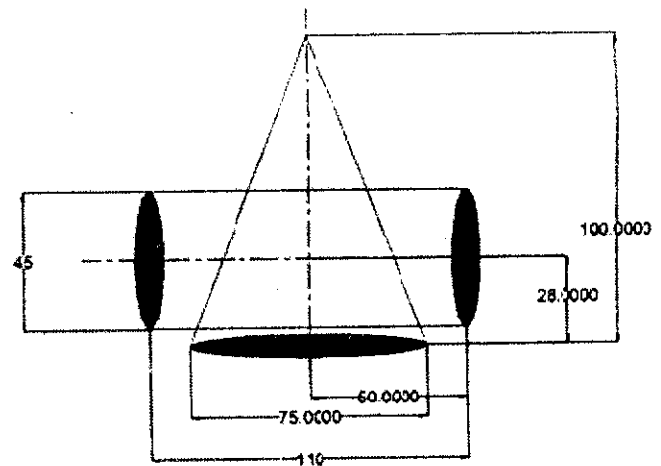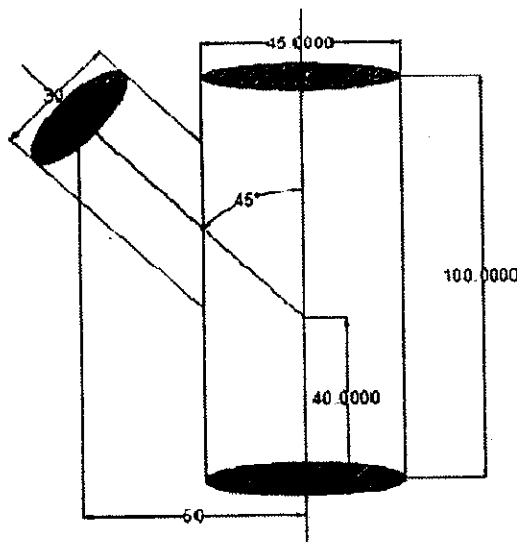**Subject: Engineering Graphics**   **Time: 3hours**   **Full Marks: 100**

Part-A

Answer any four questions   **15x4=60**

1. A right regular hexagonal prism has a face on the HP and axis parallel to V.P. It is cut by an vertical section plane, The H.T of which makes an angle of 45^0 with XY and which cut the axis at a point 20mm from one of its ends. Draw top view , sectional front view and true shape of the section side of base 30mm and height of prism 70mm.

2. A right regular hexagonal prism edge of base 20mm and height 50mm rest on its base on H.P with one of its base edge perpendicular to V.P. An auxiliary inclined plane (A.I.P) inclined to H.P at 45^0 and perpendicular to V.P cuts its axis at a distance of 25mm from the base .Draw the development of the surfaces.

3. A right regular hexagonal pyramid edge of base 20mm and height 50mm rests on its base on H.P with one of its base edge perpendicular to V.P .A section plane perpendicular to V.P and inclined at 45b to H.P cuts the axis of pyramid at a distance of 25mm from base. Develop the surfaces of truncated pyramid containing the base (Lower portion)

4. A cylindrical main pipe of diameter 45mm has a branch pipe of diameter 30mm .The axis of the branch pipe intersects with axis of main pipe at 45.Draw plan and elevation of the pipe assembly showing the intersection of pipes when two axes lie in the same plane parallel to V.P and the axis of main pipe is vertical as shown.

5. A vertical cone base diameter 75mm and axis 100mm long is completely penetrated by a cylinder of 45mm diameter .the axis of the cylinder is parallel to H.P and V.P and interacts the axis of the cone at 28mm above the base as shown. Draw plan and elevation f the solids showing curves of intersections.

6. Draw following external thread profile for 4 pitches **(Any Three)**
   a) British standard whitworth (BSW) for 't' no. of threads per inch; 6tpi
   b) Square thread pitch =10mm
   c) Knuckle thread pitch =10mm
   d) Acme thread pitch =10mm
   e) Buttress thread pitch =10mm

7. Draw the three views of the following fasteners
   a) Square nut M24x3
   b) Hexagonal nut M24x3
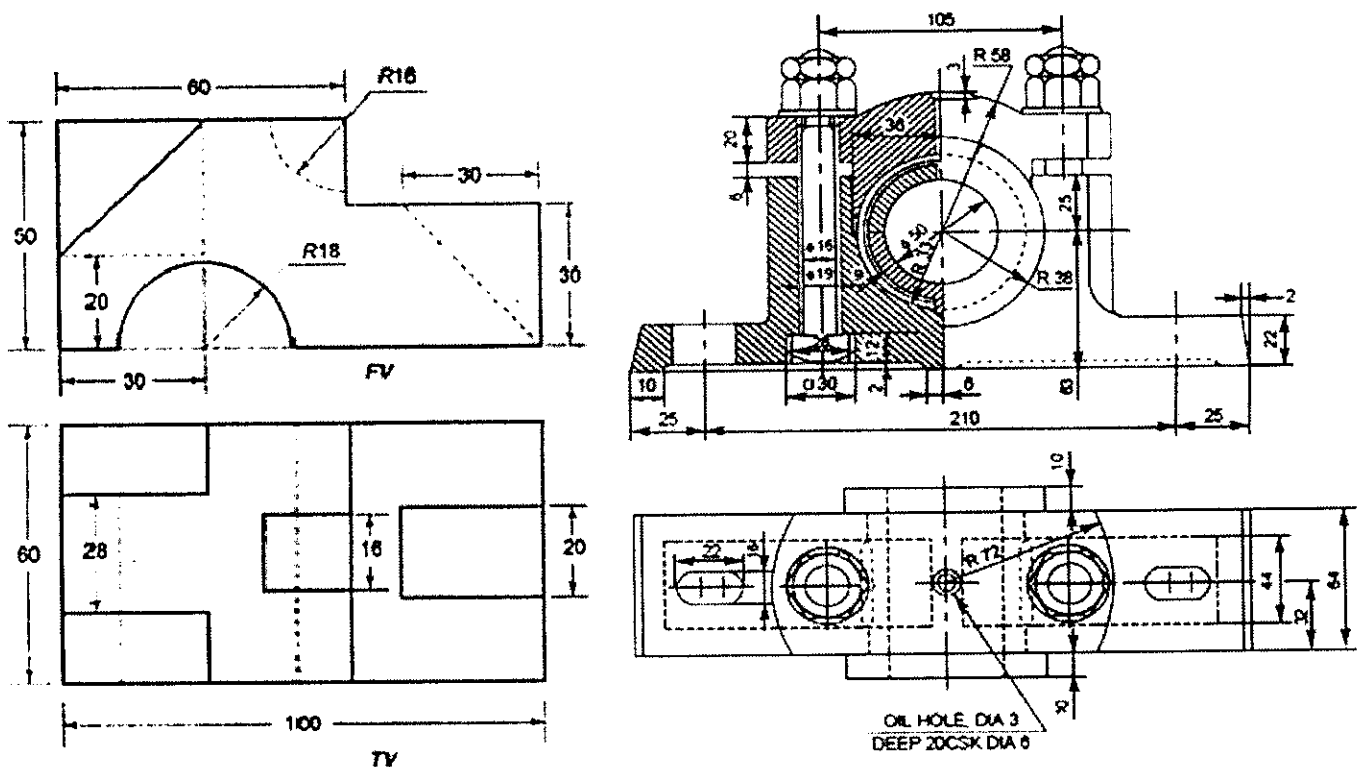   c) Show the different types of welded joint with proper diagram. **(3 types)**

Part-B

1. Draw sectional front view and top view of a triple riveted butt joint with double strap and riveting as zigzag riveting. Set head snap head and pan head ,closing head at top - snap head rivet diameter 20mm ,main plate thickness of both the plates 10mm and strap thickness for both strap 8mm.Show fullering of plate edges for leakproofness. Show at least three rivets in a row.

2. Write down the step by step commands for the following Drawing. Define array command. Show the use of rectangular and polar array with steps.

or

Draw the Plummer block as shown in fig.

3. Draw the cotter joint with proper dimensioning D=10mm.