B.POWER. ENGG. 1ST YR. 2nd SEM EXAM -2018

Engineering Graphics   Time: 4 hours   Full Marks: 100

Part-A

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

1. A right regular hexagonal cylinder base dia.50mm and axis 70mm long lies on one of its element on H.P. such that its axis is parallel to both H.P and V.P.A section plane perpendicular to H.P and inclined to V.P at 45^0 cuts the axis at a distance of 15mm from its base. Draw the sectional front view ,top view and true shape of section.

2. A right regular pentagonal prism side of base 25mm and axis 60 mm long rest on its base edge on H.P and perpendicular to V.P. Its axis is inclined at 30^0 to H.P. and parallel to V.P. It is cut by an section plane parallel to H.P and passing through the highest corner of the base. Draw Front View, Top View and true shape of Section.

3. Draw the development of surfaces of a truncated cylinder diameter 40cm and height 125mm with its axis vertical and the cutting plane as shown in **fig.1**

4. A cylinder of diameter 60mm mm having its axis vertical is penetrated by another cylinder of 40mm diameter. The axis of the penetrating cylinder is parallel to the V.P. and bisect the axis of the vertical cylinder, making an angle of $60°$with it. Draw the projections showing the curves of intersection. **fig.2**
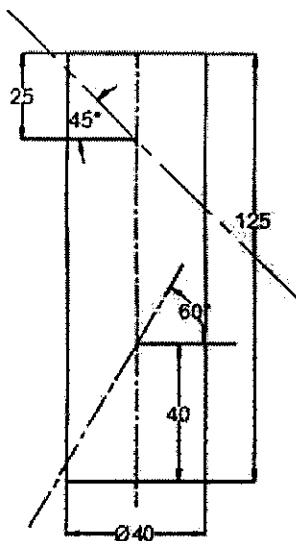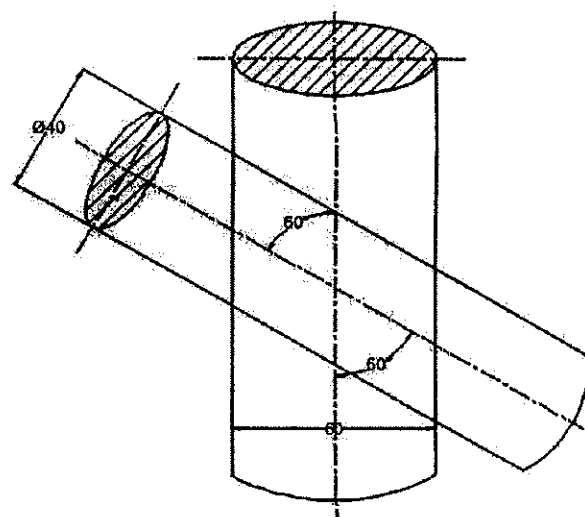
fig.1   **fig.2**

5. 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

or

Draw thread profile metric both external and internal for pitch 4mm showing at least 5 pitches (Screw thread Nomenclature) and any two types of thread.

6. Draw the three views of the following fasteners (Any Two)
   a) Hexagonal head bolt M24x3x100(40) three views
   b) Two views of plain washer for M24 Bolt.
   c) Show the different types of welded joint with proper diagram.(**3 types**)   1/2

Part-B

1. Draw sectional front view and top view of a double riveted butt joint with single strap and riveting as chain riveting. Set head at bottom pan head and closing head at top snap head. Rivet diameter 20mm ,main plate thickness of both the plates 10mm and strap thickness 12mm. Show fullering of plate edges for leakproofness. Show at least three rivets in a row.

2. **a)** Write down the step by step commands for the following Drawing. Define array command. Show the use of rectangular and polar array with steps. **fig.3**

or

b) Draw the knuckle joint with proper dimensioning D=10 mm.

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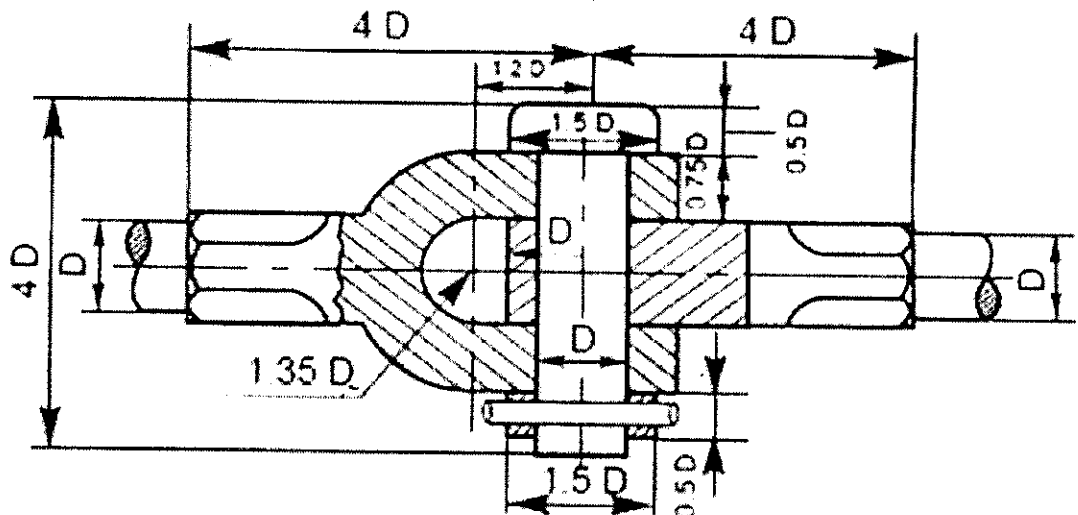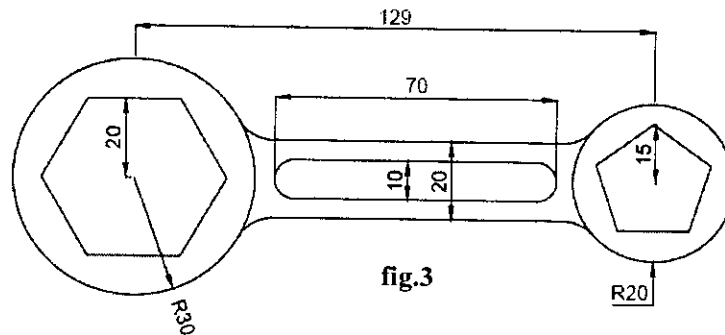
3. Draw the cotter joint with proper dimensioning D=10mm.