

- Note:
1. Question number 1 is **compulsory**.
 2. Attempt any THREE questions out of the remaining five questions.
 3. **Assume** suitable data wherever necessary and justify it.
 4. Figures to right indicate full marks.



- Q.1 (a) The component shown in **Figure (1)** is to be produced on progressive die. (08)
Find Centre of pressure for the component.

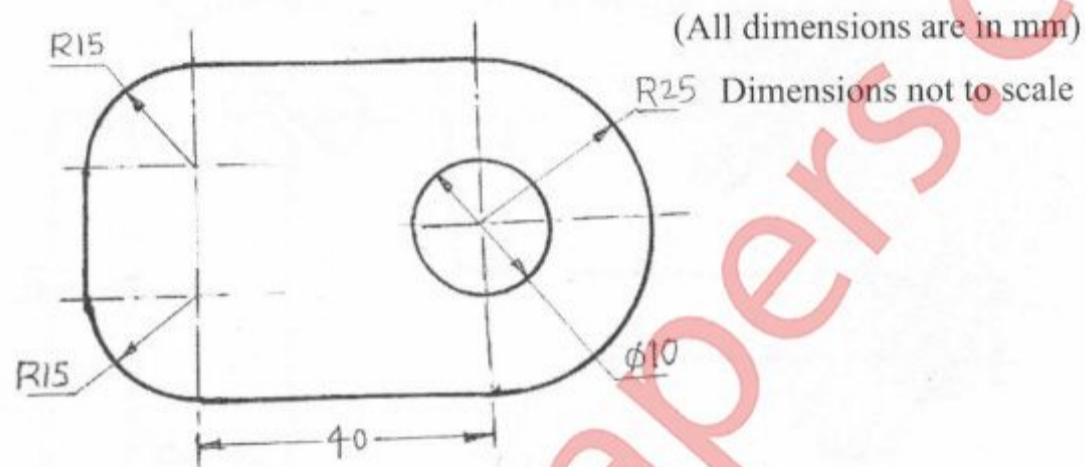


Figure (1)

- (b) With the help of working Sketches define Carburising, Oxidizing, and Neutral Flame. State one application of each in metal Joining (06)
- (c) How drawing operations in press working are differ from Bending? Explain with help of Sketches and Example. (06)
- Q.2 (a) Narrate your views in short on any four of the following. (10)
- (i) Advantages of hydraulic press drives.
 - (ii) Shaving and Trimming
 - (iii) Working principle of Resistance welding
 - (iv) Grain direction in Bending operation
 - (v) Weld flux
- (b) Explain Fine blanking. Discuss the tool construction requirements of the fine blanking operation. (06)
- (c) Stretch forming gives wrinkle free parts :- Justify with example (04)

Turn Over

- Q.3. (a) A part shown in **Figure (2)** is to be manufactured on progressive die.
- Calculate Economical Strip layout and tonnage required for the press. Consider sheet size 1000 mm long x 200 mm wide. Material: Brass, Thickness: 2 mm, Shear strength 40 kgf/mm². (05)
 - Calculate Dimensions of Punch and Die with considering clearance for both Piercing and Blanking. (04)
 - Draw the Sectional front view and Top view of bottom assembly. (05)

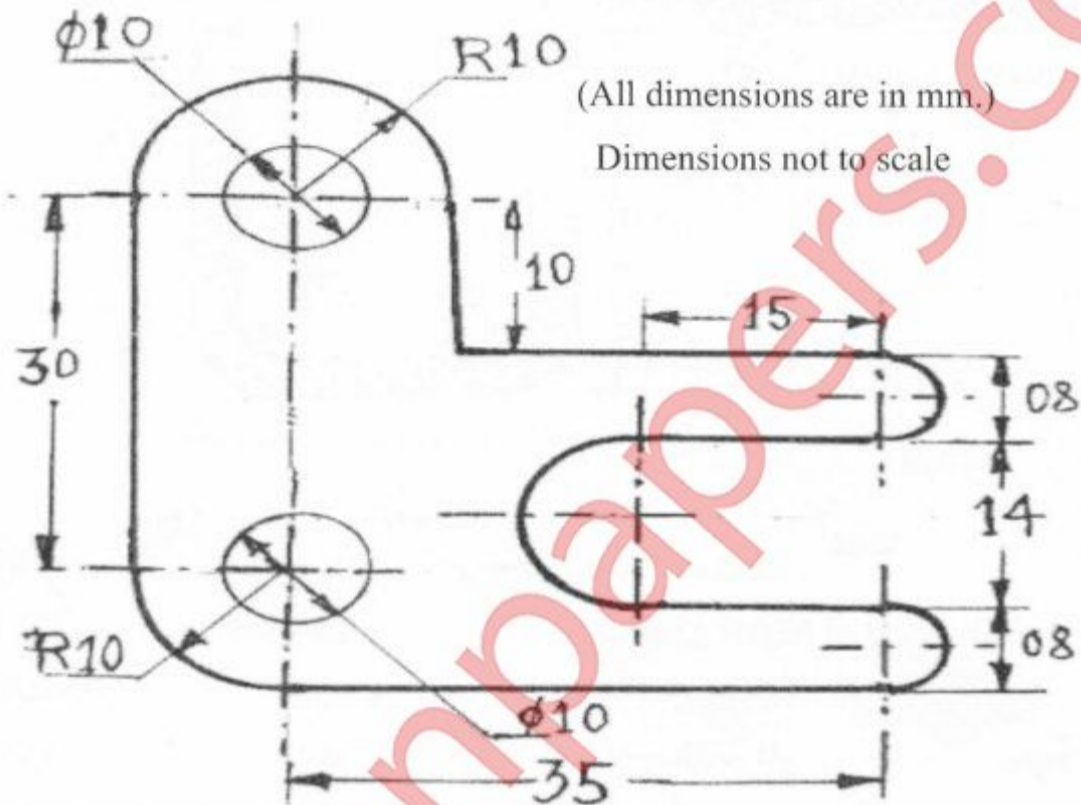


Figure (2)

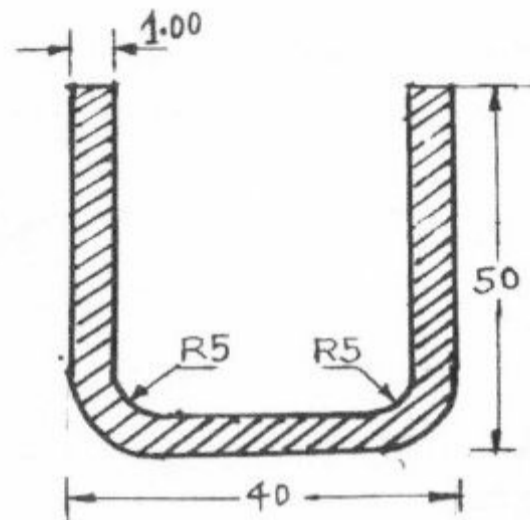
- What materials are suitable for Welding, Soldering and Brazing process? (06)
- Q.4. (a) State True or false and justify it. (12)
- TIG is a brazing process, consuming electrodes and very suitable for joining cast iron to M.S.
 - Die cushioning is preferred in heavy draw operations.
 - Bottoming and Ironing are important in bending.
 - Pitch refers to the total distance between the first and last die stations.
- Explain following Press working operations with neat sketches. (08)
 - Notching
 - Perforating
 - Embossing
 - Coining

Turn Over

Q.5. (a) For the drawn Cup shown in **figure (3)**. Calculate the following:

- (i) Developed blank size (03)
- (ii) % Reduction and Number of draws required to get final part. (04)
- (iii) Drawing and Blank holding forces in all the draws. (03)
- (iv) Reduction ratio in each draw. (02)

Cup thickness = 1.0 mm , Yield Strength = 35 kg/mm²



(All dimensions are in mm)
Dimensions not to scale

Figure(3)

- (b) Discuss different ways of holding a punch with suitable sketches. (04)
 - (c) Explain the methods used to reduce the cutting forces in press working operations. (04)
- Q.6 (a) Explain parameters in bending in short. Determine the Developed length of the part shown in **Figure (4)**, (10)

Thickness = 10 mm.

(All dimensions are in mm)

Dimensions not to scale

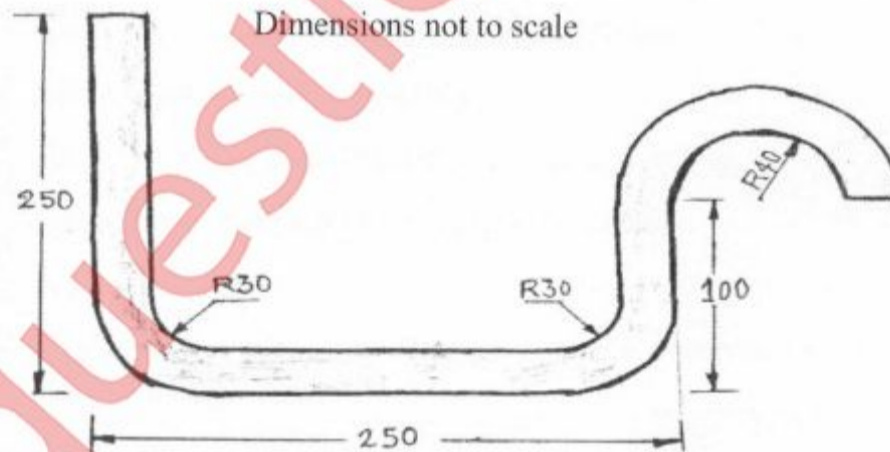


Figure (4)

- (b) Explain Solid state welding with the help of suitable diagrams. (06)
- (c) Justify the need of interstage annealing in deep drawing operation. (04)