PROD/CB GS/VI/ DPT & MT | 29.11.2016

Design of Press Tool & Metal Joing.

Q.P. Code : 608803

Hours: 03 **Marks: 80**

Note: 1. Question number 1 is **compulsory.**
2. Attempt any **THREE** questions from remaining **FIVE**
3. **Assume** suitable data if required and **Justify** it.

Q.1. The part shown in figure is to be produced on progressive die,

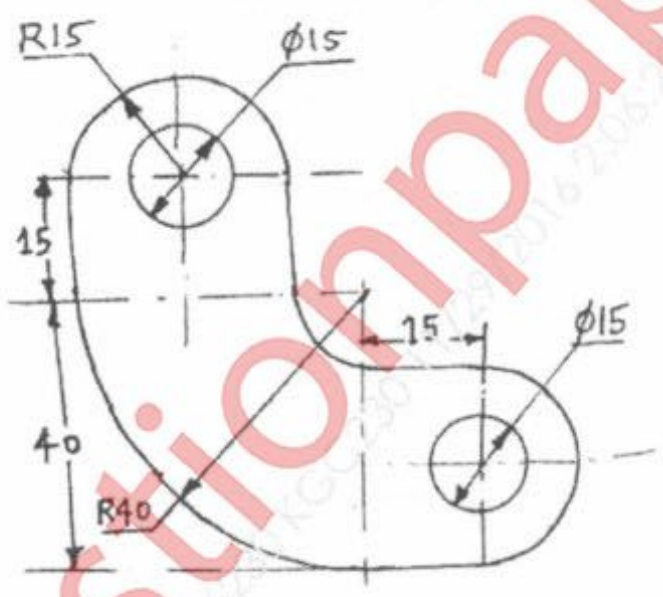
(a) (i)Calculate economic strip layout .Consider sheet size as 1000 mm X 400 mm X 2mm thick. Stock material is mild steel with 400 N/mm^2 shear strength. 5

(ii) Calculate tonnage required for layout. 2

(b) Draw the following views of Dies:

(i)Top view of bottom assembly 4

(ii) Sectional front view of Die. (All dimensions are in "mm.") 4



(b) What materials are suitable for welding, soldering and brazing process? How are thermal stresses evolved in welding 5

Q.2. (a) With proper sketch explain the following terms of a die set. 10

(i) Die block

(ii) Die shoe

(iii) Bolster plate

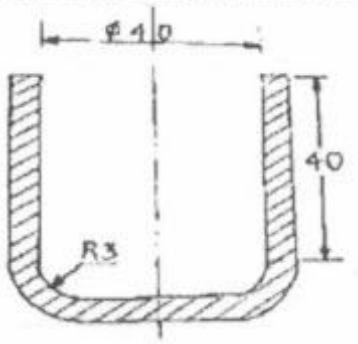
(iv) Punch plate

(v) Pilots and stoppers

(b) Explain: Consideration of grain direction for component involving bending 5

(c) What are the causes of wrinkling in deep drawn parts and explain the role of blank holding pressure in this context. 5

Q.3. (a) A CUP shown in figure has corner radius of 3 mm, Diameter 40 mm and thickness 0.8 mm is to be manufactured by Drawing operation. Determine: Blank size, No. of draws, % Reduction, Drawing and blank holding force for the same. Yield strength: 40 kg/mm2 Material: Mild carbon steel. **10**



(b) Explain different types of Welded Joints and Joint preparations **5**

(c) Explain OBI press in brief. **5**

Q.4. (a) What is spring back effect in bending? Explain methods to reduce spring back effect. **10**

(b) Explain the causes of poor quality resistance spot welds **5**

(c) Describe the working principle of Mechanical press and Hydraulic press. **5**

Q.5. (a) What is the purpose of weldability testing? Explain classification of weldability testing. Discuss weldability of Stainless steel. **10**

(b) Explain Drawing defects in sheet metal operations. **5**

(c) Explain the following with neat sketch **5**
(i)Bend Radius (ii) Bending force (iii) Air bending.

Q.6. Differentiate between the following (ANY FOUR) :- **20**

(a) TIG and MIG welding.

(b) Fine Blanking and Blanking.

(c) Compound Die and Combination die

(d) Rotary Bending and Press brake bending

(e) SAW and SMAW