

Duration -3 hours

Maximum marks -80

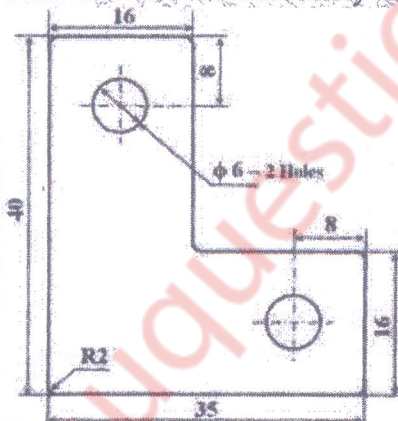
N.B.

- (1) Question No.1 is compulsory and Answer 3 Questions out of remaining 5 Questions.
- (2) Assume suitable data wherever necessary
- (3) Figurers to the right indicate full marks.

- Q.1 a) Give reasons for any five of the following statements. 15
- i) Shaving operation is carried out after blanking operation.
 - ii) Guide bushes and pillars are always hardened
 - iii) Optimum cutting clearance between die and punch should be provided to get proper cutting.
 - iv) Percentage reduction in second draw is always less than the percentage reduction in first draw.
 - v) Roll over radius is observed around the holes after piercing.
 - vi) Dowels are located diagonally across each other and as a part as possible.
 - vii) Material should be soft and annealed to carry out draw operation successfully.

b) Explain classification of presses. 05

- Q. 2 a) Part shown in figure is to be produced on progressive die. 6
- i) Draw an economical strip layout. Consider sheet size 400x 1200mm. 2
 - ii) Calculate tonnage required for the layout. 12
 - iii) Draw the following views of progressive die. 12
- Plan view of bottom assembly and sectional front elevation.

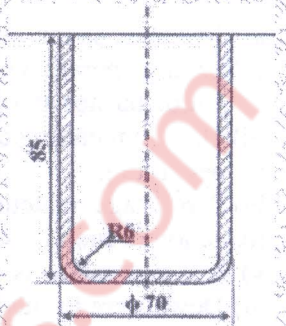


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|---|
| Material: MS |
| Thickness: 2mm |
| Ultimate Shear Strength: 340N/mm ² |
| All dimensions are in mm |

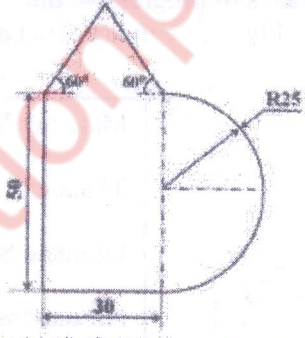
- Q. 3 a) With the help of neat sketch explain the methods of reducing spring back in bending. 6
- b) Explain various types of defects observed in deep drawing operation with causes and their remedies. 6
- c) Illustrate the methods of punch mounting. 8
- Q. 4 a) Explain double roll feed mechanism and also write its advantages. 7
- b) Write benefits, limitations and applications of press tools. 7
- c) Write safety precautions to be taken in press shop. 6

- Q. 5 a) Circular cup shown in figure is manufactured through deep drawing operation. Determine the following parameters. 15
- i) Blank size
 - ii) Percentage reduction
 - iii) Number of draws
 - iv) Radius on punches and dies
 - v) Die clearance, punch diameter and die opening size.
 - vi) Drawing force and blank holding force

Material: Copper
 Thickness: 1.5mm
 Yield Strength: 350N/mm²
 All dimensions are in mm



- Q. 6 a) A press is designed for giving 120 ton at 30° crank from BDC, when stroke is 20cm. prepare a monograph from BDC. From monograph explain: 10
- i) Overloading of torque without overloading capacity
 - ii) Overloading of capacity without overloading of torque
- b) Solve any two of the following 10
- i) Find the centre of pressure of component shown in figure.



- ii) Explain with the help of neat sketch embossing die.
- iii) Explain with the help of neat sketch working & construction of trimming die.