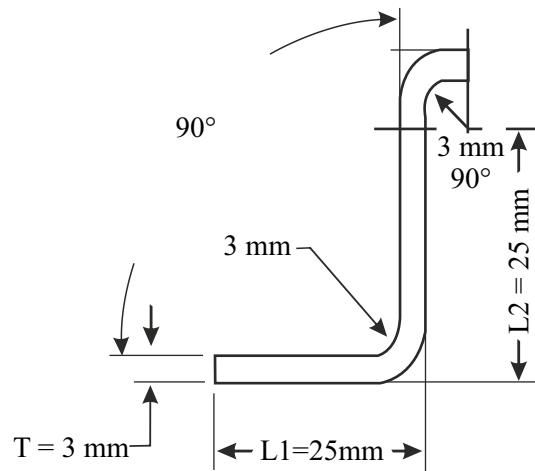


Figure 1

Q.25 Find the developed length for the bending part shown in figure (2) width 15 mm and UTS = 350 N/mm²



No. of Printed Pages : 4
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221831

3rd Sem / Mechanical (Tool & Die Design)

Subject : Press Tool-Design and Drawing

Time : 3 Hrs.

M.M. : 60

SECTION-A

Note: Multiple choice questions. All questions are compulsory (6x1=6)

Q.1 Function of stripper plate is

- a) Strip the die from the punch
- b) Strip the stock from the punch
- c) Strip off the die and the punch
- d) All of the above

Q.2 The best thickness of metal sheet for sheet metal operations is

- a) 1-5 mm
- b) 5-10 mm
- c) 7.5-10 mm
- d) 0.4-6 mm

Q.3 Which die can perform multi operation of blanking, piercing, notching

- a) Simple die
- b) Progressive die
- c) Compound die
- d) Imperical die

Q.4 Which of the following parts is used for holding the metal sheet during blanking operation?

- a) Spherical steel ball
- b) Roller
- c) Pressure pad
- d) Magnet

- Q.5 Which of the following dies is not the type of cutting dies in the metal cutting operations?
a) Squeezing dies b) Blanking dies
c) Piercing dies d) Notching dies
- Q.6 Which of the following materials is used for the manufacturing of dies and punches in the sheet metal forming?
a) Grey cast iron b) Copper
c) Aluminium d) Carbide

SECTION-B

Note: Objective/ Completion type questions. All questions are compulsory. $(6 \times 1 = 6)$

- Q.7 Define die cushioning.
Q.8 What is the purpose of bushes?
Q.9 Expand BIS
Q.10 What is the purpose of feeding mechanism?
Q.11 Define mass production.
Q.12 Name the types of presses.

SECTION-C

Note: Short answer type questions. Attempt any eight questions out of ten questions. $(8 \times 4 = 32)$

- Q.13 Explain the need of shear in press tools.
Q.14 Explain coining operation. How it is different from embossing.
Q.15 Write short note on energy requirements in different bending operations.

- Q.16 A 35 mm rectangular hole is to be cut in sheet metal of 1.5 mm thick. The shear strength of material is 300 N/mm^2 . Calculate the cutting force required.
- Q.17 Explain the need of idle station in progressive dies.
- Q.18 Explain with sketches, the different stages in shearing of sheet metal.
- Q.19 Explain the feeding mechanism in presses in detail.
- Q.20 Explain bending allowance and spring back in bending operation.
- Q.21 Define ‘Percentage Penetration’ and explain its importance while designing press tools.
- Q.22 Write short note on grain direction in bending operation.

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. $(2 \times 8 = 16)$

- Q.23 a) Discuss two methods of holding a punch with suitable sketches.
b) Explain the method to reduce the cutting forces in press working operations.
- Q.24 Design a progressive die for component in figure (1) by giving following
a) Calculate economic strip layout considering size $400 \text{ mm} \times 1200 \text{ mm} \times 2 \text{ mm}$ thick from the stock material of mild steel of 400 N/mm^2 shear strength.
b) Calculate cutting load
c) Draw front view and top view of Die