

(3 Hours)

Total Marks: 80

Note:

1. Question No. 1 is compulsory.
2. Attempt any **THREE** out of the remaining **FIVE** questions.
3. Assume suitable data if necessary.

Q. 1. Attempt any **FOUR** questions. (20)

- (a) What are the advantages and limitations of using Press Tools
- (b) Differentiate between Blanking die and Progressive die.
- (c) Draw the sketch of OBI press. What are its advantages?
- (d) Explain Renewable bush with sketch
- (e) Differentiate between Jig and Fixture.

Q. 2. (a) For a drawn cup shown in Figure 1, Calculate the following: - (10)

- Developed blank size, Number of draws required to get the final part and
% age reduction in each draw.
Yield Strength = 25 Kg/mm²

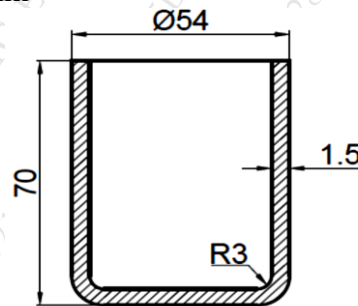


Figure 1

- (b) Explain Strap Clamps used in Jigs & Fixtures. (5)
- (c) Explain Turnover drill jigs. (5)

Q. 3. (a) Mention briefly main steps in designing a Drill Jig. Describe important (10)

- features of locating the work piece, clamping the work piece and guiding the tool. State recommended material for critical jig components and suitable hardness for the same.

- (b) Find out developed part length for the bent component shown in **Figure 2**. (5)

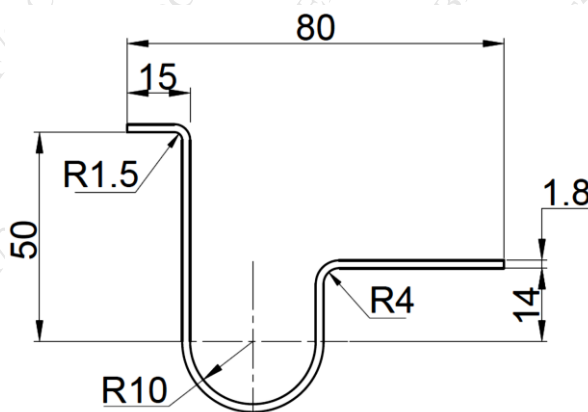


Figure 2

- (c) Explain significance of using Tenon's in Milling Fixtures. (5)

- Q. 4.** (a) Explain Principles of Location, with neat supporting sketches. (10)
(b) Explain Strip layout and its importance in press tool design. (5)
(c) What is Jamming? Explain different methods of preventing jamming with neat supporting sketches. (5)
- Q. 5.** (a) A mild steel washer with single row feeding, OD 40 mm, ID 22 mm and thickness 1.5 mm, is to be manufactured in a progressive die, Calculate economic strip layout assuming suitable bridge values, consider sheet size of 950mm x 700mm. Also, calculate the press tonnage required for component manufacturing. Shear strength for M.S. is 40 kg/mm². (15)
(b) Explain the significance of using Plate bush in designing a drill jig? (5)
- Q. 6.** Write short notes on **any FOUR** questions. (20)
(a) String milling fixture
(b) Movable Stripper
(c) Compound die
(d) Setting Blocks
(e) Direct and indirect piloting
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