

(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) Differentiate between Jig and Fixture
- (b) With a suitable example explain Centre of Pressure
- (c) Differentiate between Compound die and Blanking die
- (d) How diamond pin is used as a locator?
- (e) Differentiate between Coining and Embossing

Q. 2. (a) Explain in detail the shearing action in Press working with suitable sketches (10)

- (b) 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 = 30 Kg/mm²

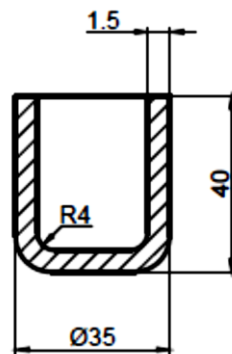


Figure 1

Q. 3. (a) Mention briefly main steps in designing a Milling Fixture. Describe (10)

important features of locating the work piece and clamping the work piece. State recommended material for critical fixture parts and suitable hardness for the same.

- (b) State the advantages and disadvantages of Press working. (5)
- (c) Explain OBI press (5)

Q. 4. (a) Explain Spring-back effect and methods used to reduce it. (5)

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

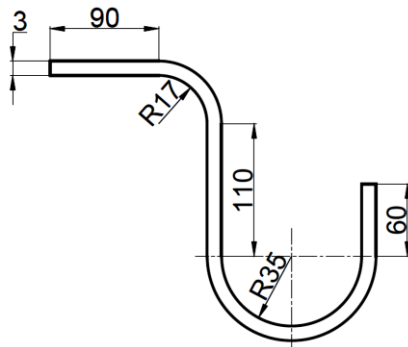


Figure 2

- (c) Why favorable grain direction is essential for severe bending operation? (5)
- (d) Explain the significance of using setting blocks in Fixtures. (5)

- Q. 5.** (a) A mild steel rectangular plate 40 x 30 x 1.5mm, with a central square hole of sides 10mm, is to be manufactured in a progressive die, with single row feeding. Calculate economic strip layout assuming suitable bridge values, considering sheet size of 650mm x 500mm. Also, calculate the tonnage of press, required for component manufacturing. Shear strength = 40kg/mm². (15)
- (b) Explain any two drawing defects. (5)

- Q. 6.** Write short notes on **any FOUR** questions. (20)

- (a) Renewable bush
- (b) Differentiate between Floating stripper and Fixed stripper
- (c) Guide pin and Guide bush
- (d) Safety in Press shop
- (e) Box Jig