DRONACHARYA GROUP OF INSTITUTIONS, GREATER NOIDA

Mechanical Engineering Department

Unit -1

1. What is the importance of manufacturing? Also give the classification of manufacturing processes?
2. What economical considerations should be made before selecting a manufacturing process?
3. Explain elastic and plastic deformation.

4. What is hot working and cold working of metals?
5. What are specific merits of cold working over hot working?
6. What is meant by grain flow in the case of forged or rolled components?
7. Briefly explain the principle of rolling with neat sketch diagram.

Unit -2

1. Distinguish between open and closed die forging process.
2. Clearly distinguish between drop forging and press forging processes.
3. Explain the various forging defects.
4. Give three examples of rolling stand arrangements.
5. What do you understand by the term flash in forging? Explain with the help of sketched diagram.
6. Derive an expression for force required in forging a strip, considering both sliding and sticking zone. Also mention the assumptions made.
7. Derive an expression for force in rolling process. Also mention the assumptions made.

Unit- 3

1. Discuss the working principle of drawing process? Explain wire drawing with diagram.
2. Differentiate between extrusion and drawing process with neat sketch.
3. Explain the following with neat sketch:
    a. Direct extrusion
    b. Indirect extrusion
4. What is the difference between compound dies and progressive dies, explain on the basis of construction, working & applications?
5. Explain the following terms with diagram.

1) Piercing 2) Blanking 3) Notching 4) Perforating 5) lancing

6. Differentiate between flat face and inclined face punch? What is the significance of providing shear on the punch?

A hole of 100mm is to be punched in a cold rolled medium carbon steel plate of 5.6 mm thickness. The ultimate shear strength of plate material is 550 Mpa. With normal clearance on the press tool cutting is completed at 40% penetration of the punch. Calculate diameter of punch and die. If the shop has a press of 30 tonnes capacity, calculate the shear angle to be provided on the panel in order to bring the work within the capacity of the existing press.

Derive an expression for forces in deep drawing process. Give all the assumptions made.

Unit – 4

1. Differentiate between expandable mold and permanent mold.
2. What are patterns? Explain different types of patterns with their applications.
3. Explain elements of gating system with their importance.
4. Explain pattern allowances in detail.
5. Discuss the various defects in casting process?
6. Explain in details the moulding process.