

**B.TECH. SEM -V PRODUCTION 2014 COURSE (CBCS) :
SUMMER - 2018**

SUBJECT : METAL FORMING

Day : **Monday**
Date : **21/05/2018**

S-2018-2370

Time : **10.00 AM TO 01.00 PM**
Max. Marks : 60

N.B.:

- 1) All questions are **COMPULSORY**.
 - 2) Figures to the right indicate **FULL** marks.
 - 3) Draw neat and labeled diagrams **WHEREVER** necessary.
 - 4) Assume suitable data if necessary.
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- Q.1** a) What is formability? Explain the significance of forming limit diagram. [05]
- b) Explain the types of wire drawing machines with its advantages and disadvantages. [05]

OR

- a) Calculate the load required to draw a wire of diameter 5 mm from 12 mm rod. [05]
Given that yield stress is 280 N/mm^2 die angle 12° and coefficient of friction 0.1.
- b) What are the defects and remedies in wire drawing and tube drawing? [05]

- Q.2** a) Give the classification of forging processes and discuss the advantages and limitations. [05]
- b) Compare single impression and multi-impression dies. [05]

OR

- a) Explain with neat sketch P/M Forging. [05]
- b) Explain with neat sketch Isothermal Forging. [05]

- Q.3** a) Discuss the variation of forces in roll gap and its effect on the rolling process. [05]
- b) What is automatic gauge control? List the methods and discuss any one. [05]

OR

- a) Determine the deformed radius of curvature of steel rolls. 500 mm diameter while rolling copper strip 800 mm wide, 75 mm thick. Give that 20% reduction is carried out yield stress of copper is 675 N/mm^2 . [06]
- b) Sketch and discuss the application of: [04]
- i) Four high rolling mill
 - ii) Two high reversible mill

P.T.O.

- Q.4 a) What is strip layout? Explain with neat sketch the design consideration of the strip layout. [05]
- b) Explain the various sheet metal cutting and forming operations. [05]

OR

- a) Write short note on: [05]
 i) Strippers ii) Spring Back
- b) Discuss the methods of reducing cutting force in press working. [05]

- Q.5 Draw a simple blanking die for following product shown in Figure.1. Design the stripper layout, number of parts that can be punched from the strip, percentage of stock used, weight of material needed to produce one blank. [10]

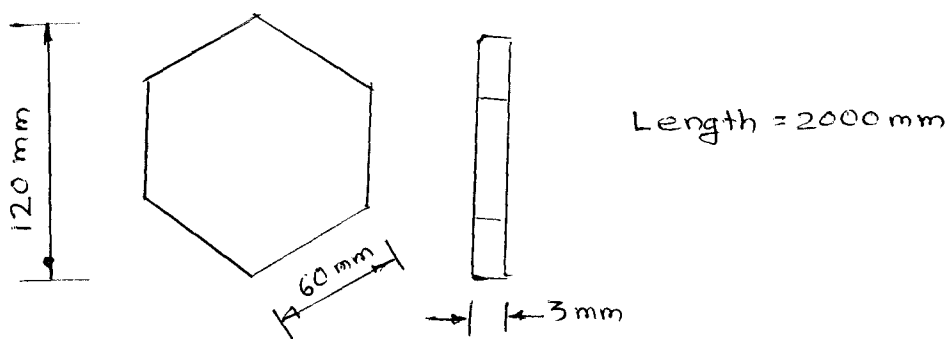


Figure 1.

OR

- Design a deep drawing die for the component shown in Figure 2. [10]

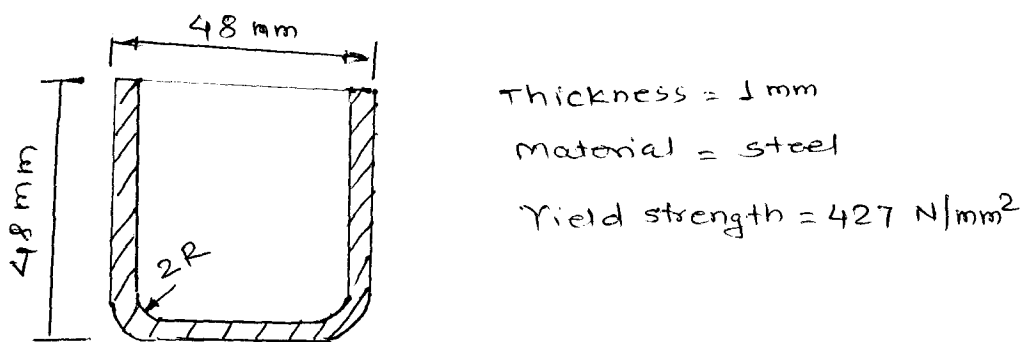


Figure 2.

- Q.6 a) Compare extrusion and rolling. [05]
- b) Explain role of friction and lubricants in extrusion process. [05]

OR

- a) What is mean by extrusion? Explain different types of extrusion process. [05]
- b) Explain the extrusion load characteristics during indirect extrusion and impact extrusion. [05]

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