

**B.TECH SEM – V (2007 COURSE) (PRODUCTION ENGG.) :**

**WINTER - 2017**

**SUBJECT: METAL FORMING**

Day: **Tuesday**  
Date: **16/01/2018**

Time: **02.30 PM TO 05.30 PM**  
Max Marks: **80**

**W-2017-2481**

**N.B.:**

- 1) **Q.No. 1** and **Q.No.5** are **COMPULSORY**. Out of remaining questions attempt **ANY TWO** questions form each section.
- 2) Figures to the right indicate **FULL** marks.
- 3) Draw neat and labeled diagrams **WHEREVER** necessary.
- 4) Answers to both sections should be written in **SEPARATE** answer book.
- 5) Assume suitable data if necessary.

**SECTION-I**

- Q.1**
- a) Explain the stress strain curve for rolling process, with its ~~elasticity~~ formality limit diagram. **(05)**
  - b) Give the list of products used in any car, manufactured by extrusion process. **(04)**
  - c) Explain in detail isothermal forging. **(04)**
- Q.2**
- a) Explain formality diagram for plastic, rigid- elastic, rigid – plastic, elastic- plastic and rigid materials with suitable examples. **(07)**
  - b) Explain with neat sketch cone type wire drawing machine. List the advantages, limitations and application of this machine. **(06)**
- Q.3**
- a) Determine the rolling load when a piece of Cast Iron 500 mm wide, 30mm gauge is reduced by 15% in a mill with roll diameter of 50 mm. Given that yield stress of C-I is  $380\text{N/mm}^2$ . **(07)**
  - b) Explain two high, three high and cluster mills with its advantages and disadvantages. **(06)**
- Q.4**
- a) Explain the sequence of the processes to manufacture the connecting rod, with neat sketch. **(07)**
  - b) Explain the two types of presses <sup>used</sup> in forging with neat sketch. **(06)**

**P.T.O.**

## SECTION-II

- Q.5 a)** Draw a simple banking die for following product shown in figure No. 01, design the strip layout, and calculate percentage utilization of strip for strip dimension length 1 meter and width 50cm. **(14)**

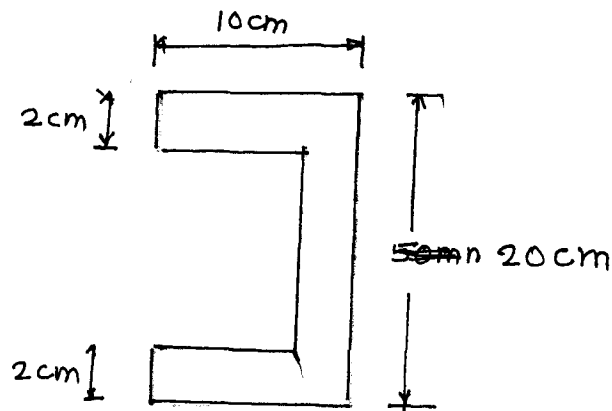


Figure No: 01

- Q.6 a)** A washer with a 12mm internal hole and outside 18mm is to be formed from 1.5mm thick strip of 0.2 per cent carbon steel. Considering the elastic recovery of the material find a) the clearance b) blanking die opening size c) the blanking punch size d) the piercing punch size e) the piercing die- opening size. **(07)**
- b)** What is strip layout? Explain with neat sketch the design considerations of the strip layout. **(06)**
- Q.7 a)** Explain with neat sketch Compression molding and Transfer molding. **(07)**
- b)** What are the additional agents that are required to modified or enhance the properties of the polymer? **(06)**
- Q.8 a)** Explain with neat sketch explosive confined and unconfined process. **(07)**
- b)** Explain the method to manufacture seamless tubes. **(06)**

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