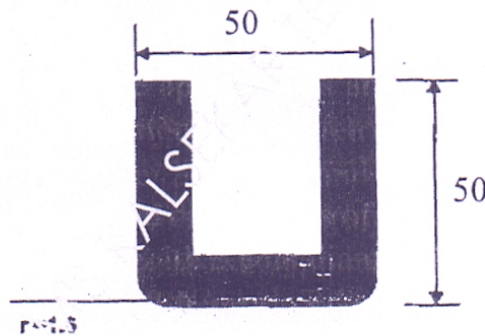


(3 Hours)

[ Total Marks : 80

- N.B.:** (1) Question no. 1 is compulsory.  
 (2) Attempt any Three out of remaining five.  
 (3) Draw neat and labeled diagrams wherever required.

1. Attempt any four questions. (5 marks each) 20
- Explain the terms Fool proofing and swarf clearance
  - Write note on: Flexible manufacturing systems
  - Draw labelled diagram for compound die operation.
  - Differentiate between blanking and piercing with diagram.
  - What is HSM? Write applications and advantages of HSM.
  - Write a note on 'Diamond Pin',
2. (a) Find the total pressure and dimensions of die & punch sets to produce a washer of 6cm outside diameter with 2.6cm diameter hole from material 3.7mm thick, having shear strength 390 N/mm<sup>2</sup>. Take clearance 9% of stock thickness. 06
- (b) Explain working of progressive die with diagram. 06
- (c) Discuss all sheet metal operations with diagrams. 08
3. (a) A symmetrical cup work-piece as shown in figure, is to be made from cold rolled steel 1.2mm thick. Calculate the size of the blank, % reduction required, number of draws and drawing pressure. Take  $C=0.69$ ,  $\sigma_{yt} = 450 \text{ N/mm}^2$  08



- (b) State and explain 'the principle of 3 - 2 - 1 location' with diagram 06
- (c) Write a detail note on 'Ultrasonic Machining' 06
4. (a) Discuss in detail general arrangement of an injection mold with feeding, cooling, runner, gate and ejection system. Draw neat labelled diagram. 10
- (b) Write note on agile manufacturing and its integration into product-process development. Give suitable examples to elaborate your answer. 10

[ TURN OVER

5. (a) What are various clamping principles? and also explain working of any three types of clamps used in jigs and fixtures with diagram. 10
- (b) Write note on : 10
- (i) angular Jig
  - (ii) Indexing Fixtures
6. Write note on
- (a) Locating Pins and Drill Bushes 7
  - (b) Electrochemical Machining 7
  - (c) Water Jet Machining 6
-

**Course:** T.E. (SEM.-V)(CBSGS) (MECHANICAL ENGG.)  
COMMON WITH (AUTOMOBILE ENGG.) (prog 665 TO  
678)

**Q.P Code:** 3265

**Correction:**

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**Q.no.(3)(a)**

Additional information:

**Inside corner radius = 1.6 mm**

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**Query Update time: 29/05/2015 03:00 PM**