M.E. First Semester (Production Tech. & Mgt.) (P.T.) (CGS)

13531 : Advanced Metal Forming and Casting Technology : 1 SPTM 2

P. Pages : 1 **AW - 3693**

Time : Three Hours * 0 3 3 8 * Max. Marks : 80

Notes : 1. Answer **Three** question From Section A and **Three** question from Section B.
2. Assume suitable data wherever necessary.
3. Illustrate your answer necessary with the help of neat sketches.
4. Use of Drawing instrument, is permitted.
5. Use of pen Blue/Black ink/refill only for writing the answer book.

SECTION – A

1. a) What are the factors affecting the / stock layout? **7**

b) What are the different methods of bending? **6**

2. a) What are the methods of reducing the maximum force in blanking? **8**

b) What is horn die? **5**

3. Design a progressive die for producing a washer of 60 mm diameter having a hole of 16 mm at the center from a 2 mm thick M.S. Sheet. **14**

4. Design a blanking die for producing a component of your choice. Draw a neat sketch of this die. **13**

5. a) What is sectional rolling? Draw a series of passes required for producing channels and I beams. **7**

b) Derive a formula for finding the maximum reduction possible in a single pass in rolling? **6**

SECTION – B

6. a) What is the purpose of flash and gutter? How are the dimensions of the flash decided? What are the various types of flash and gutter designs used in forging die? **7**

b) What is 'HERF'? What are the various methods used for 'HERF'? Explain any one with neat sketch. **6**

7. Design and draw a multi-impression forging die for producing a component of your choice. **13**

8. Design a upset forging die for a suitable component of your choice. Also draw a neat sketch of this die. **13**

9. What do you mean by Powder metallurgy? What are its applications? Describe five methods of producing metal powders? **13**

10. a) Describe with neat sketches the process of 'Shell Mould Casting'. **6**

b) Explain the following defects of casting: **7**
i) Misrun ii) Hot tears. iii) Shrinkage

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