

C 80815

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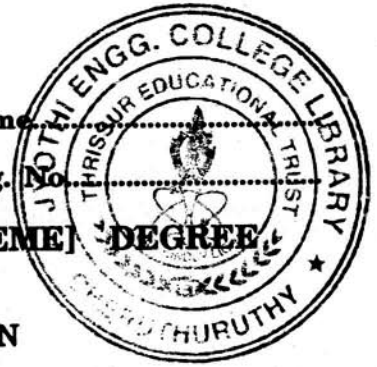
Reg. No. _____

**SIXTH SEMESTER B.TECH. (ENGINEERING) [09 SCHEME] DEGREE
EXAMINATION, APRIL 2015**

ME 09 L05—TOOL ENGINEERING AND DESIGN

Time : Three Hours

Maximum : 70 Marks



Part A

Answer all questions.

1. Define tool signature.
2. What is chip reduction coefficient ?
3. Explain die clearance.
4. What is the function of sprue pin ?
5. What are the basic rules for location ?

(5 × 2 = 10 marks)

Part B

Answer any four questions.

6. What are the factors which decide the cutting speed of the drill ?
7. What are the effects of cutting variables on the chip reduction coefficient ?
8. List out the difference between a compound and progressive die.
9. Describe in detail the various classes of plastics.
10. Describe any one type of jig with a neat sketch.
11. What are the important considerations to be considered for press tool design ?

(4 × 5 = 20 marks)

Part C

Answer all questions.

12. (a) Discuss on the selection of milling cutter geometry and design.

Or

- (b) Explain the following with reference to single point cutting tool :—

- | | |
|--------------------------------|-------------------------|
| (i) Back rack angle. | (ii) Side rack angle. |
| (iii) Side cutting edge angle. | (iv) Side relief angle. |
| (v) End cutting edge angle. | |

Turn over

13. (a) A steel component 20×60 mm is to be made from 2 mm thick sheet. Sketch the scrap strip layout. Also determine the percentage of stock used.

Or

- (b) (i) What is a stripper plate ? Describe various types of stripper plates. (5 marks)
(ii) With a neat sketch, explain the common components of a simple die. (5 marks)
14. (a) Describe the design of thermoplastic injection mould with an example.

Or

- (b) Explain the following :
- (a) Runner and Gate ;
 - (b) Riser ;
 - (c) Mould tools.
15. (a) What is a fixture ? Describe the following types of fixtures :
- (i) Grinding fixture.
 - (ii) Broaching fixture.
 - (iii) Lathe fixture.
 - (iv) Boring fixture.

Or

- (b) (i) Explain with sketches any *four* types of locators used in jigs/fixtures. (5 marks)
(ii) Sketch and explain the use of :
- 1 Finger clamp.
 - 2 Setting block.
 - 3 Tenons.
 - 4 Stepping blocks.

(5 marks)

[4 × 10 = 40 marks]