



# CBCS SCHEME

18ME35A/18MEA305

Third Semester B.E. Degree Examination, Feb./Mar. 2022

## Metal Cutting and Forming

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

### Module-1

- 1 a. What are the difference between orthogonal cutting and oblique cutting? (06 Marks)
- b. Briefly explain the mechanism and types of chip formation. (08 Marks)
- c. Draw Mechant's circle diagram and state the assumptions made in establishing the relationship among the various forces. (06 Marks)

OR

- 2 a. Differentiate between Capston and Turret lattice. (06 Marks)
- b. Draw the tool layout for producing a hexagonal headed bolt or a caster lathe from a hexagonal bar stock. Assume the dimensions. (08 Marks)
- c. List and explain the various operations carried out on lattice machine. (06 Marks)

### Module-2

- 3 a. Define Milling. Explain with a neat sketch vertical milling machine. (10 Marks)
- b. Define Drilling. With a neat sketch explain a radial drilling machine. (10 Marks)

OR

- 4 a. Sketch and explain the fundamental parts of a horizontal shaping machine. (10 Marks)
- b. With a neat sketch, explain the centerless grinding machine. (10 Marks)

### Module-3

- 5 a. Define load wear. Explain creator wear and flank wear. (06 Marks)
- b. Write a note on functions and types of cutting fluids used in metal cutting. (06 Marks)
- c. Define tool life and explain the factors which affect the tool of life. (08 Marks)

OR

- 6 a. Which are the different forms of wear on the cutting edge of a tool? With suitable sketch explain. (08 Marks)
- b. Explain the choice of cutting speed a feed. (06 Marks)
- c. Explain the critical cutting parameters which affect the tool life. (06 Marks)

### Module-4

- 7 a. What is forging? Explain working of board hammer with sketch. (10 Marks)
- b. With a neat sketch explain the classification of metal working process on the basis of force applied. (10 Marks)

OR

- 8 a. With a neat sketch, explain different types of rolling mill arrangement. (10 Marks)
- b. With a neat sketch, explain the wire drawing process. (10 Marks)

### Module-5

- 9 a. How sheet metal operations are classified? Explain with a neat sketch. (10 Marks)
- b. What do you mean by dies? Write a note on : i) Progressive dies ii) Combination dies. (10 Marks)

OR

- 10 a. With a neat sketch, explain V-bending and edge bending operations. (10 Marks)
- b. With a neat sketch, explain the parts of open back inclinable press. (10 Marks)

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