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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)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.