



CBCS SCHEME

21ME42

Fourth Semester B.E. Degree Examination, June/July 2023 Machining Science and Jigs & Fixtures

Time: 3 hrs.

Max. Marks: 100

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

Module-1

- 1 a. Define the working principle of lathe. How can you specify a lathe? (06 Marks)
- b. Explain with neat sketch, the working of Radial drilling machine. (08 Marks)
- c. Explain briefly with sketches at any three drilling operation. (06 Marks)

OR

- 2 a. Draw the engine lathe and cable the parts and discuss the function of lathe parts. (10 Marks)
- b. Difference between upmilling and down milling process. (05 Marks)
- c. With a neat sketch, explain construction and working of common grinding machine. (05 Marks)

Module-2

- 3 a. Distinguish between orthogonal and oblique cutting with a neat sketch. (06 Marks)
- b. List and explain different types of chips formed in metal cutting process. (08 Marks)
- c. Sketch and explain single point turning tool geometry. (06 Marks)

OR

- 4 a. List and explain different types of cutting tool materials and state their specific applications. (06 Marks)
- b. Draw a merchant's circle diagram, using usual notations and state the assumptions. (08 Marks)
- c. List the various types of cutting fluids used in metal cutting briefly. Explain. (06 Marks)

Module-3

- 5 a. What is machinability? Define machinability index. (04 Marks)
- b. What are the factors affecting on tool life? (06 Marks)
- c. Explain the process of Electroplating. (10 Marks)

OR

- 6 a. Describe the importance of surface finish process. (04 Marks)
- b. With a neat sketch, explain the Honing process. (06 Marks)
- c. Briefly explain powder coating and Galvanizing process. (10 Marks)

Module-4

- 7 a. Explain with neat sketch the process of Abrasive Jet Machining. (10 Marks)
- b. Explain with neat sketch the process of ultrasonic machining process. (10 Marks)

OR

- 8 a. Explain with neat sketch of Electro Discharge machining. (10 Marks)
b. Explain with neat sketch of Laser beam machining. (10 Marks)

Module-5

- 9 a. What are the importances of Jigs and Fixtures in industries? (06 Marks)
b. List the types of Jigs and Fixtures. (06 Marks)
c. What are the materials used to manufacture Jigs and Fixtures? (08 Marks)

OR

- 10 a. What are the factors to be considered to design Jigs and Fixtures? (06 Marks)
b. Briefly explain on Template, Plate, Channel in Jigs. (06 Marks)
c. Briefly explain the importance of fixtures in milling and turning. (08 Marks)

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