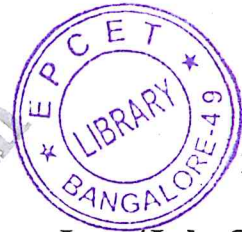


CBCS SCHEME

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21ME42

Fourth Semester B.E./B.Tech. Degree Examination, June/July 2025 Machining Science and Jigs and Fixtures

Time: 3 hrs.

Max. Marks: 100

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

Module-1

- 1 a. With a neat sketch, explain parts of Lathe machine. (10 Marks)
b. With a neat sketch, explain Vertical Milling machine. (10 Marks)

OR

- 2 a. With a neat sketch, explain Radial drilling machine. (10 Marks)
b. With a neat sketch, explain Cylindrical grinding machine. (10 Marks)

Module-2

- 3 a. With a neat sketch, explain the nomenclature of a single point cutting tool. (12 Marks)
b. Distinguish between Orthogonal cutting and Oblique cutting. (08 Marks)

OR

- 4 a. Draw a "Merchant's (MCD) Model of orthogonal cutting with usual notations and state the assumptions. (10 Marks)
b. What are the characteristic of cutting fluids and explain methods of cutting fluid supply? (10 Marks)

Module-3

- 5 a. Define Tool wear. Explain crater wear and flank wear. (10 Marks)
b. List and explain the essential properties of cutting tool material. (05 Marks)
c. Explain the effect of machining parameters on surface finish. (05 Marks)

OR

- 6 a. With a neat sketch, explain working principle of Honning process. (10 Marks)
b. With a neat sketch, explain working principle of electroplating process. (10 Marks)

Module-4

- 7 a. With a neat sketch, explain the Abrasive Jet Machining (AJM) process. (10 Marks)
b. With a neat sketch, explain the Powder Assisted Electric Discharge Machining (PAEDM) process. (10 Marks)

OR

- 8 a. With a neat sketch, explain Electro Chemical Machining (ECM) process. (10 Marks)
b. With a neat sketch, explain the Ultrasonic Machining (USM) process. (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.

Module-5

- 9 a. Differentiate Jig and Fixtures. Explain importance of Jig and Fixtures. (10 Marks)
b. With a neat sketch, explain the following Jigs :
i) Template
ii) Plate
iii) Leaf
iv) Diameter (10 Marks)
- OR**
- 10 a. Explain essential features of Jig and Fixtures. (05 Marks)
b. List and explain the Jig and Fixtures materials. (05 Marks)
c. With a neat sketch, explain following fixtures :
i) Turning.
ii) Milling.
iii) Grinding.
iv) Boring. (10 Marks)

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