



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)

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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