

II B. Tech II Semester Supplementary Examinations, February - 2022
METAL CUTTING & MACHINE TOOLS
(Mechanical Engineering)

Time: 3 hours

Max. Marks: 75

Answer any **FIVE** Questions each Question from each unit
All Questions carry **Equal** Marks

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- 1 a) In an orthogonal cutting tool what are the important tool angles that are to be maintained? For each of the angle explain its influence on the machining performance. [10M]
b) Describe basic requirements of machining. [5M]
- Or
- 2 a) In a normal turning operation the tool life is 30 minutes at a cutting speed of 25m/min and when cutting speed is 70m/min, tool life is 2 minutes. Estimate tool life for this cutting operation at a cutting speed of 60m/min. [8M]
b) Explain the construction of merchant force diagram. [7M]
- 3 a) Discuss about the classification of lathes. [7M]
b) Discuss about the thread turning attachment on lathe. [8M]
- Or
- 4 a) Explain the principal features of automatic lathes. [7M]
b) Discuss the working of various tool holding devices of lathe. [8M]
- 5 a) Explain various operations performed in drilling machine. [7M]
b) Explain the working of a hydraulic quick return mechanism of a shaper. [8M]
- Or
- 6 a) Explain the working of a slotted disc mechanism for driving the ram of a slotter. [7M]
b) Explain the working of a shaper with neat sketch. [8M]
- 7 a) Differentiate between shaping, planning and slotting, as regards relative tool and work motions. [7M]
b) With the help of a line diagram, explain the constructional features of a universal milling machine. [8M]
- Or
- 8 a) What is the principle of working of milling machines? How do you classify the milling machine? [8M]
b) With the help of a line diagram, explain the constructional features of a universal milling machine. [7M]
- 9 a) List the product applications of lapping process. [5M]
b) Describe in detail about honing tools. [10M]
- Or
- 10 a) Differentiate between traverse and plunge grinding. [7M]
b) Explain with neat sketch i) Centre less grinding ii) Internal grinding [8M]

