Code No: **19MET503**

R19

III B. TECH I SEMESTER REGULAR EXAMINATIONS, FEB - 2022
METAL CUTTING AND MACHINE TOOLS
(MECHANICAL ENGINEERING)

Time: 3 Hours **Max. Marks: 60**

Note: Answer **ONE** question from each unit **(5 × 12 = 60 Marks)**

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UNIT-I

1. a) Distinguish between Single Point Cutting and multipoint cutting. [6M]
   b) Describe conditions of formation of continuous chips in metal cutting processes. [6M]

(OR)

2. a) What is the significance of speed, depth of cut and feed on cutting tool life? Brief out. [6M]
   b) Develop an expression of coefficient of friction in metal cutting from Mechant's cycle. [6M]

UNIT-II

3. a) Work out a line diagram of the Engine lathe with all major parts. [6M]
   b) Distinguish between Capstan and Turret lathes. [6M]

(OR)

4. a) Evaluate any typical process of producing external threads on cylindrical works using engine lathe. [6M]
   b) Describe various types of tool holders of engine lathe. [6M]

UNIT-III

5. a) State the limitations of planer machine with respect to shaper. [6M]
   b) Elaborate the procedure of machining time calculations of shaping operations. [6M]

(OR)

6. a) Sketch kinematic diagram of a Radial Drill machine with all principal parts. [6M]
   b) What are various operations of a general purpose drill machine? [6M]

UNIT-IV

7. a) Classify and explain cutting operations of Milling Machines. [6M]
   b) Why indexing in milling is required? Explain any suitable index method to cut gear teeth on milling machine. [6M]
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(OR)

8. a) Explain the specification and manufacture features of a Grinding wheel. [6M]

   b) Tabulate the differences of lapping and honing. [6M]

UNIT-V

9. a) Elaborate the working of jigs as per the 3-2-1 location principle. [6M]

   b) Explain any four milling fixtures with support of diagrams [6M]

(OR)

10. a) In tabular form, Distinguish among NC, CNC and DNC Machines. [6M]

    b) Write various advantageous and applications of CNC. [6M]

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