

III B. Tech II Semester Supplementary Examinations, February-2022

MACHINE TOOLS & METROLOGY

(Automobile Engineering)

Time: 3 hours

Max. Marks: 70

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- Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)
 2. Answer **ALL** the question in **Part-A**
 3. Answer any **FOUR** Questions from **Part-B**
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PART –A**(14 Marks)**

1. a) What are the factors affecting tool life? [2M]
- b) Why two sets of guide ways are required in lathe machine? [2M]
- c) How do you specify a slotting machine? [2M]
- d) Explain Straddle milling with a neat sketch. [3M]
- e) What do you understand by fits? [3M]
- f) What are the applications of tool maker's microscope? [2M]

PART –B**(56 Marks)**

2. a) Explain the nomenclature of single point cutting tool. [7M]
- b) Explain why studying the type of chips produced is important in understanding metal cutting operation. [7M]
3. a) How does the apron mechanism of a lathe works? Explain with the help of a neat diagram. [7M]
- b) Explain the different types of tool post with neat sketches. [7M]
4. a) Sketch and describe any one quick return mechanism of shaper. [7M]
- b) Draw a neat sketch of a standard twist drill and indicate the nomenclature of various parts and angles. [7M]
5. a) Explain different types of indexing methods with example. [7M]
- b) List the various types of milling cutters. With a neat sketch explain cutter geometry. [7M]
6. a) Bring out the salient features of British standard and ISO systems of limits and fits. [7M]
- b) Write detailed notes on progressive and positional limit gauges. [7M]
7. a) Explain how flatness errors of lapped surfaces are measured with an optical flat. [7M]
- b) Explain how an optical comparator works and briefly enumerate the advantages of optical comparators. [7M]

