

Code No: R1631032

R16

SET - 1

III B. Tech I Semester Supplementary Examinations, August – 2021

METAL CUTTING AND MACHINE TOOLS

(Mechanical Engineering)

Time: 3 hours

Max. Marks: 70

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) Explain the factors affecting tool life. [2M]
- b) List commonly used attachments on lathe? [2M]
- c) How is the size of a planer specified? [2M]
- d) Write the features of end milling. [3M]
- e) Differentiate between Honing and Buffing. [3M]
- f) What are the applications of CNC machines? [2M]

**PART -B**

**(56 Marks)**

2. a) Draw Merchants force diagram. State the assumptions made in the development of such a diagram. [7M]
- b) Explain the effects of the following parameters on chip formation: [7M]  
i) Material of work piece; ii) Tool Geometry.
3. a) Explain briefly the following lathe accessories: [7M]  
i) Driving Plate; ii) Lathe Centers.
- b) Discuss the constructional features of speed gear box. [7M]
4. a) Draw the block diagram of a slotting machine and explain briefly its principal parts. [7M]
- b) Draw a neat sketch of a standard twist drill and indicate the nomenclature of various parts and angles. [7M]
5. a) What are the different types of cutters used in milling operations? Describe them. [7M]
- b) Describe the schematic diagram of universal milling machine. [7M]
6. a) What is an abrasive? Explain briefly the following abrasives: [7M]  
i) Silicon Carbide; ii) Aluminum Oxide.
- b) Differentiate between transverse and plunge grinding. [7M]
7. a) Differentiate between a jig and fixture. Explain the principle of 3-2-1 location. [7M]
- b) Discuss the constructional features of CNC machines. [7M]

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