

Code No: **RT31032**

**R13**

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. Answering the question in **Part-A** is compulsory  
3. Answer any **THREE** Questions from **Part-B**

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**PART -A**

**(22 Marks)**

1. a) Compare coolant with lubricant. [3M]
- b) Mention the significance of Automats in industry. [4M]
- c) Draw twist drill and mention the angles. [4M]
- d) What is upward and downward milling? [4M]
- e) Explain center less grinding operation. [4M]
- f) Give the classification of CNC lathe. [3M]

**PART -B**

**(48 Marks)**

2. a) What are the important angles that are to be maintained in an orthogonal cutting tool? For each of the angle explain its influence on the machining performance. [8M]
- b) Enumerate the differences between orthogonal cutting and oblique cutting. [8M]
3. a) Discuss the constructional features of feed gear box with a neat sketch. [8M]
- b) Classify and explain the types of automatic lathes. [8M]
4. a) Explain the mechanism used in slotting machine with a neat sketch. [8M]
- b) List out and explain the tool holding devices used in a drilling machine. [8M]
5. a) Explain compound indexing method with an example. [8M]
- b) Briefly explain various operations performed on a milling machine. [8M]
6. a) How to select a grinding wheel? Briefly explain. [8M]
- b) What are the grinding process parameters that are of interest? Explain their effect on the grinding performance and the wear rates. [8M]
7. a) Which system is the most basic and elementary form of modular fixtures? Explain briefly. [8M]
- b) Discuss the types of motion controls in CNC machines. [8M]

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