

III B. Tech I Semester Supplementary Examinations, May - 2016
METAL CUTTING & 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**

PART -A

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|---|------------------------------------------------------------------|------|
| 1 | a) Why can relief or clearance angles never be zero or negative? | [3M] |
| | b) Give four applications of grinding process. | [4M] |
| | c) What is a lap? Explain. | [4M] |
| | d) What is diamond machining? Explain. | [3M] |
| | e) What are the various types of lathe? | [4M] |
| | f) What do you mean by the term 'Taper'? | [4M] |

PART -B

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|---|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
| 2 | What are the velocities which come in to existence when a metal is cut orthogonally? Show these velocities graphically on a velocity diagram and determine the mathematical relationship in terms of shear and rake angles. | [16M] |
| 3 | a) What are the advantages of having a hollow spindle in the headstock of lathe? | [8M] |
| | b) Explain briefly the parts of lathe. | [8M] |
| 4 | Discuss in detail the following with neat sketches: | [16M] |
| | a) Radial drilling machine | |
| | b) Sensitive drilling machine. | |
| 5 | a) What is the function of milling machine? | [4M] |
| | b) Explain with a neat sketch about a horizontal milling machine. | [12M] |
| 6 | a) How is grinding classified? | [4M] |
| | b) Explain with a neat sketch a plane cylindrical grinder. | [12M] |
| 7 | a) What is a "clamp"? | [4M] |
| | b) List the basic requirements of clamping devices and explain about quick acting clamps. | [12M] |