

**IP/IEM/ME/PR-603****B.E. VI Semester**

Examination, June 2017

**Metal Cutting and CNC Machines****Time : Three Hours****Maximum Marks : 70****Note:** i) Attempt any five questions.

ii) All questions carry equal marks.

1. List the various types of lathe machine. Explain any one with the help of neat sketch. 14

2. a) What is turning? Explain in brief the different types of turnings. 7  
b) What is a single point cutting tool? Explain the complete Nomenclature of a single point cutting tool with the help of neat sketches. 7

3. How are grinding machine classified? What do you mean by centreless grinding? Describe the operation, advantages and limitation of centreless grinding. 14

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4. a) How can you classify the different types of milling machine? 7  
b) What is Indexing? Explain dividing head index. 7

5. a) Name the various operations that can be done on a milling machine. Explain the process of gear cutting on a milling machine. 7  
b) What do you understand by Drilling, Reaming and Boring? How do they differ from each other? 7
6. What is the working principle of a shaper? Name different quick return mechanisms employed in shapers and explain the working of one of them. 14
7. a) Specify a shaping machine. Write step by step, how you will calculate the machining time of a flat surface in a shaping machine? 7  
b) Discuss root mean square method and centre line average method used for evaluating the surface roughness. 7

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8. Write short notes on: 14  
a) Principle of gear hobbing process  
b) Benefits of CNC machine over NC machines  
c) Automatic feed mechanism of a shaper

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