

Roll No.

24261

**B. Tech. 5th Semester (ME)
Examination – December, 2014**

MANUFACTURING TECHNOLOGY-II

Paper : ME-309-F

Time : Three Hours] [Maximum Marks : 100

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper.

No complaint in this regard, will be entertained after examination.

Note : Attempt any *five* questions in all. Question No. **1** is *compulsory* (short answer type) and select at least *one* question from each Section.

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| 1. (a) Define an NC system. | 2 |
| (b) Define MCU. | 2 |
| (c) Define absolute and incremental coordinate system. | 2 |
| (d) Define PFA. | 2 |

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- (e) Name the different coding systems. 2
- (f) Coated tools. 2
- (g) Clamping devices. 2
- (h) What do you mean by jig and name the various types of jig. 4
- (i) Tool signature of single point cutting tool. 2

SECTION – A

2. (a) Explain the mechanism of chip formation and classify the various types of chips along with the condition of their formation. 10
- (b) What do you mean by tool wear and explain the various types of tool wear. 10
3. An orthogonal cutting of steel is done with 10° rake tool, with a depth of cut 2 mm and feed rate of 0.20 mm/rev. The cutting speed is 200 m/min. The chip thickness, ratio is 0.31. The vertical cutting force is 1200N and the horizontal cutting force is 650N. Calculate from the Merchant's theory, the various work done in metal cutting and shear stress. 20

SECTION – B

4. Explain ECM and ECG on the basis of Principle, System analysis, Equipment, Dielectric fluid, Electrodes, Process characteristics, Advantages, Disadvantages and Applications with neat sketch. 20
5. (a) Explain the Milling Fixtures with the help of neat diagram. 10
- (b) Write the short note on Electron beam machining. What are the methods of generating electron beam? 10

SECTION – C

6. Define CNC and DNC with their advantages, disadvantage and compare CNC and DNC. 20
7. (a) What are the principles to be considered while placing the locators in different planes of part? 8
- (b) How is cutter compensation given in the case of a machining centre? Explain it with the help of an example how it is operational? Specify any of the limitations in using this facility. 12

SECTION - D

8. What is Group Technology ? What are the benefits of group technology ? What are the various stages of adopting group technology ? 20
9. (a) How classification and coding of parts is done in Group Technology layouts ? Also give some benefits of using group technology principles in production plant. 12
- (b) Write a short note on composite part concept used in group technology. 8