Code No: NR321403 **NR**

III B.Tech II Semester Supplementary Examinations, April/May 2005
ADVANCED MANUFACTURING TECHNOLOGY
(Mechatronics)

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) With the help of a neat sketch, define the following rake angles.
   i. Effective rake angle
   ii. Normal rake angle.
   (b) What are the various types of tool failures? Discuss them briefly.
2. (a) Explain any two methods of taper turning on a lathe and compare their relative merits.
   (b) Explain with the help of neat diagram the working of an apron.
3. (a) With simple sketches explain the various shaping operations.
   (b) Describe the following principal parts of planer.
   i. Power Transmission
   ii. Tool head
   iii. Table.
4. How is the drilling machine specified? Give a brief description of various types of drilling machines.
5. (a) Describe the setup and procedure of cutting cams on a universal milling machine.
   (b) Differentiate between up milling and down milling. Explain their applications.
6. (a) How is the abrasive selected for a grinding operation? Give the reasons for selection.
   (b) Explain the principle of centreless grinding and its uses.
7. (a) Explain the following with reference to jig and fixtures.
   i. V-locators
   ii. Cavity locators.
   iii. Rest Buttons
   iv. Adjustable locators.
   (b) What is the function of the indexing head in a milling machine attachment? Explain.
8. (a) Discuss the effect of the following on metal removal rate in Electro Chemical Machining.

i. Polarization
ii. Inter electrode gap
iii. Acids as electrolytes
iv. Initial condition of work piece

(b) Sketch and explain the construction and working of Electric Discharge Machining process.

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