

Exam.Code:1015
Sub. Code: 7444

2063
M.E. (Mechanical Engineering)
Second Semester
MME-202: Advanced Manufacturing Processes

Time allowed: 3 Hours

Max. Marks: 50

NOTE: Attempt five questions in all, selecting atleast two questions from each Section. All questions carry equal marks.

x-x-x

<u>SECTION-A</u>	
Q1 (a)	How are Nontraditional machining process classified? State its importance
(b)	Is unconventional machining process an alternate or complement to conventional machining process? Justify.
Q2 (a)	Write the working principle of Abrasive Jet Machining with neat figure. What are the process parameters in Abrasive Water Jet Machining?
(b)	Explain Ultra Sonic Machining with a neat figure. How the amplitude and frequency of vibration effects on material removal rate in Ultra Sonic Machining.
Q3 (a)	Describe the principle and equipment for Water Jet Machining. Also explain the different applications and process control features of WJM.
(b)	Compare the CHM with ECM with respect to their process parameters
Q4 (a)	What are maskants? How and where they are used? Explain the complete process with the help of neat sketches.
(b)	State the principle of chemical machining process? What are the properties are expected from the electrolysis used in the ECM? Also describe, the electrolytes commonly used in ECM? What are the results due to improper selection of electrolyte in ECM?
<u>SECTION-B</u>	
Q5	Explain the EDM process with a neat sketch in respect of (i) equipment (ii) process parameters (iii) process performance and (iv) the applications, advantages and limitations.
Q6 (a)	Explain the working principle of PAM with the help of neat sketches. Write its various Disadvantages and applications.
(b)	In reference to the advanced manufacturing processes, define tool wear ratio, cycle time, over cut and re-hardening?
Q7	Describe the Laser Beam Machining equipment and Electron Beam Machining equipment.
Q8 (a)	What are the unique characteristics a Laser machining technique possesses that make it the only choice for the job? ii) What is meant by "optical pumping" briefly explain the "population inversion between energy levels" with respect to laser beam machining?
(b)	Discuss the process parameters of Electron Beam Machining and their influence on Machining quality?

x-x-x