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B.E./ B.TECH. (FULL-TIME) DEGREE END SEMESTER EXAMINATIONS- APRIL/MAY 2011
MECHANICAL ENGINEERING BRANCH
VIII SEMESTER
ME 481 – NEWER MACHINING PROCESSES
(REGULATIONS 2004)

Time : 3 Hours

Max. Marks : 100

Answer ALL Questions

PART- A (10 x 2 = 20 Marks)

1. How will you decide to recommend specific advanced machining processes for cutting a glass plate into two pieces?
2. Rank the newer machining processes with respect to accuracy.
3. "Abrasive jet machining is not recommended to machine ductile materials". Comment.
4. Compare ultrasonic machining with traditional abrasive machining.
5. Name the most commonly used spark generating circuits in electrical discharge machining.
6. What are the basic requirements of tool material for electrical discharge machines?
7. Write down the differences between chemical machining and electro-chemical machining.
8. What are the process parameters of electro chemical machining?
9. Why is the deflection coil provided for electron beam machining?
10. What are the limitations of laser beam machining?

PART - B (5 X 16 = 80 Marks)

11. Classify newer machining processes on the basis of the type of energy employed. Also, state the mechanism of material removal, transfer media and energy sources used.
- 12.a) Explain the following in details.
 - i) Types of transducers for Ultrasonic Machining(USM). (6)
 - ii) Feed mechanisms in USM. (6)
 - iii) Abrasives for USM. (4)(OR)
- b)
 - i) Describe the equipment and working principle for water jet machining. (12)
 - ii) Show the effect of nozzle tip clearance on the material removal rate in abrasive jet machining. (4)
- 13.a)
 - i) Explain the working principle of wire cut electric discharge machining process with a sketch. (12)
 - ii) What are the functions of dielectric fluids used in electric discharge machining process? (4)(OR)
- b)
 - i) Write the help of a neat sketch; explain the mechanism of material removal in Electric Discharge Machining (EDM). (12)
 - ii) What are the functions of an adaptive control system in EDM? (4)
- 14.a)
 - i) Explain electro chemical grinding and honing processes in detail. (12)
 - ii) List the commonly used electrolytes in electro-chemical machining. (4)(OR)
- b)
 - i) Describe the steps involved in photo-chemical machining. (10)
 - ii) Give details about the various etchants and maskants used in chemical machining. (6)
- 15.a)
 - i) Describe the different types of plasma arc torches. (12)
 - ii) Explain the effect of focusing on the performance of laser beam machining. (4)(OR)
- b)
 - i) Describe the various process parameters that influence the performance of electron beam machining. (12)
 - ii) Why electron beam machining process is performed usually in a vacuum chamber (4)