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**B.E/B.Tech. (Full Time) DEGREE END SEMESTER EXAMINATIONS, APRIL/MAY 2013
MECHANICAL ENGINEERING BRANCH
FIFTH SEMESTER**

ME 9304 – MODERN MACHINING PROCESSES

(REGULATIONS 2008)

Answer ALL Questions

Time: 3 hr

Max.Mark:100

Part – A (10 x 2 = 20 Marks)

1. Differentiate conventional and unconventional machining processes.
2. Recommend the modern machining processes that are suitable for machining of glass.
3. Name the materials which are used for making the different components of ultrasonic machine.
4. What are the advantages of additives in water jet machining?
5. What is the working principle of wire-cut Electric Discharge Machine (EDM)?
6. Define "Trepanning".
7. What are the methods to avoid overcut in Electro Chemical Machining (ECM)?
8. Define "etch factor".
9. What is meant by double arcing?
10. Differentiate transferred and non-transferred plasma arc machining?

Part-B (5 x 16 = 80 Marks)

11. i. With suitable graphs, explain the effect of EDM process parameters on the Material removal rate and surface finish during machining. (8)
ii. Describe the construction and working principle of electric discharge diamond grinding machine with a diagram. (8)
12. a. Describe the process capability of different modern machining processes.
Or
b. Explain the material applications and effects on equipments and tooling of various modern machining processes.
13. a. Explain the process characteristics of water jet machining, abrasive jet machining and ultrasonic machining processes.
Or
b. i. Describe the construction details of abrasive water jet machine. (6)
ii. Explain the various types of static load feed mechanisms and transducer circuits used in ultrasonic machine. (10)
14. a. i. Describe the laws and the mathematical modelling that govern the ECM process? (8)
ii. Explain the chemical reactions that occur in ECM process while using copper as tool, mild steel as workpiece and sodium chloride as electrolyte. (8)
Or
b. i. Describe the various etchants and maskants used in chemical machining? (8)
ii. Explain the various methods of coating maskant for chemical machining. (8)
15. a. Compare the process characteristics of various types of laser beam machining?
Or
b. Compare electron beam machining and ion beam machining based on experimental setup, working principle, advantages, limitations and applications.