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06ME665

Sixth Semester B.E. Degree Examination, June 2012

Non-Traditional Machining

Time: 3 hrs. Max. Marks:100

Note: ***Answer FIVE full questions, selecting at least TWO questions from each part.***

PART – A

1 a. Give the broad classification of non-traditional machining processes. **(06 Marks)**

b. What are the advantages of non-traditional machining processes? **(06 Marks)**

c. With a neat sketch, explain the working principle of ultrasonic machining process. **(08 Marks)**

2 a. Explain the effect of different process parameters on machining performance in USM process. **(10 Marks)**

b. What are the advantages, disadvantages and applications of USM process? **(10 Marks)**

3 a. Sketch and explain AJM process. **(10 Marks)**

b. During AJM process the mixing ratio is 0.2. Calculate the mass ratio if the ratio of density of abrasive and density of carrier gas is 20. **(04 Marks)**

c. What are the process variables that affect the performance of water-jet machining process. **(06 Marks)**

4 a. With a neat sketch, explain the working principle of ECM process. **(08 Marks)**

b. Sketch and explain different types of tools used in ECM process. **(06 Marks)**

c. List the advantages, limitations and applications of ECM process. **(06 Marks)**

PART – B

5 a. What are Maskants used in chemical machining? Explain the different types of it. **(10 Marks)**

b. What are the factors to be considered in the selection of etchant? **(04 Marks)**

c. List the commonly used dielectric fluids in EDM process. What properties should they posses? **(06 Marks)**

6 a. Derive the relationship for breakdown voltage, V_b in EDM process, ($V_b \approx 0.72\ V_o$), where V_o is the supply voltage. **(12 Marks)**

b. Sketch and explain ECG process. **(08 Marks)**

7 a. Sketch and explain transferred and non-transferred plasma arc system. **(10 Marks)**

b. Write a note on process performance in plasma arc cutting process. **(04 Marks)**

c. Write a note on different types of lasers used in LBM process. **(06 Marks)**

8 a. What are the advantages and applications of laser beam machining? **(08 Marks)**

b. Sketch and explain electro beam machining process. **(08 Marks)**

c. What are the process parameters affect on the machining process in EBM? **(04 Marks)**

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