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10ME665

Sixth Semester B.E. Degree Examination, Dec.2019/Jan.2020

**Non-Traditional Machining**

Time: 3 hrs.

Max. Marks:100

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

**PART – A**

- 1 a. Explain briefly the classification of non-traditional machining process. (06 Marks)  
 b. Justify the need of unconventional machining process (05 Marks)  
 c. Briefly explain the following elements of the ultrasonic machining : (09 Marks)  
 (i) Work material (ii) Amplitude of vibration (iii) Slurry concentration
- 2 a. With an illustration explain working principle and operations of AJM. (10 Marks)  
 b. Write a note on abrasives used in AJM with applications. (05 Marks)  
 c. What are the advantages and limitations of AJM? (05 Marks)
- 3 a. With an illustration explain working principle and operations of Electro Chemical Machining process. (10 Marks)  
 b. Explain the material removal rate in Electro Chemical Machining process. (05 Marks)  
 c. Briefly discuss merits and demerits of ECM. (05 Marks)
- 4 a. Discuss briefly the following in ECM tool : (10 Marks)  
 (i) Insulation (ii) Slug formation  
 b. Explain the following : (10 Marks)  
 (i) Electrochemical Grinding (ii) Electrochemical Shaping

**PART – B**

- 5 a. Describe the working principle of chemical machining process. (05 Marks)  
 b. Write a note on 'etchants' in chemical machining process. (05 Marks)  
 c. Explain chemical blanking with the flow chart showing all the principle process steps. (10 Marks)
- 6 a. With an illustration explain working principle and operations of EDM. (10 Marks)  
 b. Define flushing. Explain any two different types of flushing methods. (10 Marks)
- 7 a. Discuss briefly the "Generation of Plasma" in Plasma arc machining. (06 Marks)  
 b. Explain the process characteristics of Plasma arc machining. (04 Marks)  
 c. Explain the different types of parameters in Plasma arc machining. (10 Marks)
- 8 a. With an illustration explain working principle and operations of EBM. (10 Marks)  
 b. With an illustration explain working principle and operations of LBM. (10 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
 2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

E 4 Feb 2020