CBCS SCHEME

USN | | | | | | | | | | |

15ME554

Fifth Semester B.E. Degree Examination, July/August 2022
Non-Traditional Machining

Time: 3 hrs. Max. Marks: 80

Note: ***Answer any FIVE full questions, choosing ONE full question from each module.***

Module-1

1 a. Distinguish between conventional machining methods and Non-traditional machining methods. **(08 Marks)**

b. What is the need for an Non-Traditional Machining (NTM) process? What are the criterion involved in NTM process selection. **(08 Marks)**

OR

2 a. Classify the Non-Traditional Machining process on the basis of mechanism of metal removal, Transfer media, Type of energy and energy source. **(08 Marks)**

b. What are the advantages, limitation and applications of non-traditional machining process over conventional machining process? **(08 Marks)**

Module-2

3 a. Sketch and explain the working principle of ultrasonic machining process and also mention its advantages. **(08 Marks)**

b. Explain with neat sketch various tool feed mechanism used ultrasonic machining process. **(08 Marks)**

OR

4 a. Explain any three process variables that influence the rate of metal removal and accuracy of machining in abrasive jet machining. **(06 Marks)**

b. What are the process variables that effect the performance of water jet machining process? **(05 Marks)**

c. With the help of neat sketch, explain water jet machining process. **(05 Marks)**

Module-3

5 a. Explain the chemistry of ECM process with a neat Diagram, **(08 Marks)**

b. Discuss the various process parameters of electrochemical machining process. **(08 Marks)**

OR

6 a. Write a note on etchants indicating factors to select. **(06 Marks)**

b. Explain the chemical blanking process with the flow chart. **(05 Marks)**

c. Write advantages, limitations and applications of chemical machining process. **(05 Marks)**

Module-4

7 a. Explain with sketch, the mechanism of metal removal in electric discharge machining. **(08 Marks)**

b. Write the functions and characteristics of dielectric fluid. **(08 Marks)**

OR

8 a. Explain with sketch the principle of working of plasma arc machining. **(08 Marks)**

b. Explain process parameters and process characteristics of PAM process. **(08 Marks)**

Module-5

9 a. Sketch and explain mechanism of metal removal in Laser beam machining process. **(06 Marks)**

b. Discuss the various process parameter of LBM process. **(05 Marks)**

c. List the advantages, limitations and applications of LBM process. **(05 Marks)**

OR

10 a. Sketch and explain the generation and control of electron beam used in EBM process. **(08 Marks)**

b. List the advantages, limitations and applications of EBM process. **(08 Marks)**

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