CBCS SCHEME

USN | | | | | | | | | |

18ME641

Sixth Semester B.E./B.Tech. Degree Examination, June/July 2025
Non-Traditional Machining

Time: 3 hrs. Max. Marks : 100

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

Module-1

1 a. Briefly explain the need of non-traditional machining operations. **(05 Marks)**
b. Distinguish between Traditional and Non-Traditional Machining Operations. **(05 Marks)**
c. Define and classify the Non-Traditional Machining Processes in detail. **(10 Marks)**

OR

2 a. Briefly explain the various characteristics of NTM. **(05 Marks)**
b. List the advantages and disadvantages of NTM. **(05 Marks)**
c. List and explain the various factors to be considered for selection of NTM. **(10 Marks)**

Module-2

3 a. With a neat sketch explain the working of Ultrasonic Machining Process. **(10 Marks)**
b. Explain briefly the Rope-pulley gravity tool feed mechanism used in USM. **(05 Marks)**
c. Discuss the influence of various process parameters on performance criterion of USM. **(05 Marks)**

OR

4 a. With a neat sketch explain the working principle of Abrasive Jet Machining. **(10 Marks)**
b. Write the expression for Metal Removal Rate (MRR) in AJM process. Mention clearly the terms involved with their units. **(05 Marks)**
c. Briefly explain the various process parameters that influence the WJM operation. **(05 Marks)**

Module-3

5 a. Briefly explain the Anodic dissolution phenomenon that occurs in electrolysis process used in ECM. **(05 Marks)**
b. Name and explain the various types of electrolytes used in ECM process. **(05 Marks)**
c. With a neat diagram, explain the working of electro-chemical Honning process. **(10 Marks)**

OR

6 a. Briefly explain the elements involved in Chemical Machining (CHM) process. **(05 Marks)**
b. Write a note on chemical blanking process using suitable sketches. **(05 Marks)**
c. List out the various process parameters and briefly explain their effects on chemical machining process. **(10 Marks)**

Module-4

7 a. Briefly explain the mechanics of metal cutting in EDM. **(05 Marks)**

b. With a neat diagram, briefly explain the feed control mechanism used in EDM process. **(05 Marks)**

c. Draw circuit diagrams of various types of pulse generator used in EDM. Clearly mention the devices/elements used. **(10 Marks)**

OR

8 a. With a neat sketch briefly explain PAM process. **(10 Marks)**

b. Explain briefly the various modes of electrical connections used in DC torches of PAM process. **(10 Marks)**

Module-5

9 a. With a neat sketch, briefly explain the working of Laser Beam Machining (LBM). **(10 Marks)**

b. Define LASER. Briefly explain the different techniques of generating Laser. **(10 Marks)**

OR

10 a. With a neat sketch briefly explain the working of EBM. **(10 Marks)**

b. Explain the various parameters that effects the performance of EBM process. **(10 Marks)**

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