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Question Paper Code : 40813

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2021.

Sixth/Seventh Semester

Mechanical Engineering

ME 8073 — UNCONVENTIONAL MACHINING PROCESSES

(Common to Manufacturing Engineering/Mechanical Engineering
(Sandwich)/Mechanical and Automation Engineering/Production Engineering)

(Regulations 2017)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. List out the parameters which improves the material removal rate in water jet machining.
2. State the demerits of the ultrasonic machining.
3. List out the electrode materials used in electric discharge machining.
4. State the types of lasers used in manufacturing operations.
5. List out the type of etchants used in chemical machining.
6. Define masking in electro chemical machining.
7. State the materials preferred as an abrasive particle and its size in nano finishing.
8. Write down the principle of magneto rheological finishing.
9. Define non traditional machining processes.
10. State the necessity of non traditional machining processes.

PART B — (5 × 13 = 65 marks)

11. (a) Explain with neat sketch the working principle and the parametral influence of abrasive jet machining.

Or

- (b) Discuss the physics of ultrasonic waves. Explain the generation of waves and machining process.

12. (a) Discuss the considerations in EDM tool design. Explain in detail about the tool parameters and its role in material removal rate and surface finish.

Or

- (b) Distinguish and explain the high energy machining processes.

13. (a) Distinguish and explain the chemical machining and electro chemical machining processes.

Or

- (b) List out and explain the specific advancements in electro chemical machining processes.

14. (a) Explain the working principle and the tooling of chemo-mechanical polishing.

Or

- (b) Distinguish between the magnetic abrasive and magneto rheological finishing processes and explain about both the processes.

15. (a) Explain the recent developments in non traditional machining processes.

Or

- (b) Discuss the factors to be considered, while selecting the non traditional machining processes.

PART C — (1 × 15 = 15 marks)

16. (a) Explain the energy and cost efficient non-traditional machining processes that call be used for profile cutting in detail.

Or

- (b) Discuss the importance and emergence of nano finishing processes in detail.