Reg. No. :

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 — $(10 \times 2 = 20 \text{ marks})$

- 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 nessecity of non traditional machining processes.

PART B — $(5 \times 13 = 65 \text{ marks})$

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.

 \mathbf{Or}

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

PART C —
$$(1 \times 15 = 15 \text{ marks})$$

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.