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Question Paper Code : 21053

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2012.

Seventh Semester

Mechanical Engineering

080120059 — UNCONVENTIONAL MACHINING PROCESSES

(Regulation 2008)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Differentiate between traditional and nontraditional machining.
2. What is the need for using nontraditional machining?
3. Define the functions of transducers in ultrasonic machining.
4. Give the range of frequency required for ultrasonic machining.
5. Name the electrolytes which are used in electro chemical machining.
6. Give the applications of electro chemical grinding.
7. What is dielectric system?
8. Name the wire materials which are used in wire cut EDM.
9. What is the function of electron beam gun?
10. What is abrasive flow finishing?

PART B — (5 × 16 = 80 marks)

11. (a) Classify the modern machining processes in detail. Justify for its economic aspects. (16)

Or

- (b) Explain the principles, equipments, transducer, tool holders, tools, abrasives, applications, advantages and limitations of Ultrasonic Machining. (16)

12. (a) Explain the principles, equipments, mechanics of metal removal, MRR, applications, advantages and limitations of Abrasive Jet Machining. (16)

Or

- (b) Explain the principles, equipments, mechanics of metal removal, MRR, applications, advantages and limitations of Water Jet Machining. (16)

13. (a) Explain the principles, equipments, chemistry of process, electrolytes, tools, accuracy and surface finish, process capabilities, applications and advantages of Electro Chemical Machining. (16)

Or

- (b) Explain the principles, equipments, accuracy and surface finish, process capabilities, applications and advantages of Electro Chemical Grinding. (16)

14. (a) Explain the principles, equipments, dielectric system, electrode, tools, process capabilities, applications and advantages of Electro Discharge Machining. (16)

Or

- (b) Explain the principles, equipments, positioning system, wire drive system, process capabilities applications and advantages of Electro Discharge Wire cutting. (16)

15. (a) Explain the principles, machining system, process capabilities, applications and advantages of Electron Beam Machining with neat Sketch. (16)

Or

- (b) (i) Describe the principles, equipments, solid state laser, gas laser, thermal features applications and advantages of Laser Beam Machining. (8)

- (ii) Describe the principles, equipments, solid state laser, gas laser, thermal features applications and advantages of Plasma Arc Machining. (8)