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Question Paper Code : 41055

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2013.

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. Enlist the requirements that demand the use of unconventional machining.
2. List the different types of abrasives used in AJM.
3. Give the applications of water jet machining.
4. List the limitations in ultrasonic machining.
5. Name the factors which affect metal removal rate in ECM.
6. Give the applications of electro chemical grinding.
7. What are the functions of dielectric fluid for EDM.
8. List the applications of wire EDM.
9. Narrate the principle of electron beam machining.
10. Give the advantages of magnetic abrasive finishing.

PART B — (5 × 16 = 80 marks)

11. (a) (i) Explain the important factors that should be considered during the selection of an unconventional machining process for a given job. (8)
- (ii) How are the developments in the area of materials partly responsible for evolution of advanced machining techniques? (8)

Or

- (b) (i) Classify the unconventional machining process on the basis of type of energy employed. Also, state the mechanism of metal removal, transfer media and energy sources used. (10)
- (ii) Write a note on recent development in unconventional machining techniques.

12. (a) (i) Describe the apparatus, nozzles, process parameters, process capabilities and applications of Abrasive Jet Machining. (8)
- (ii) Describe the apparatus, metal removal rate, process principles and applications of Water Jet Machining. (8)

Or

- (b) Explain the principles, equipments, transducer, tool holders, tools, abrasives, applications, advantages of Ultrasonic Machining. (16)
13. (a) Briefly 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 honing and deburring processes. (16)
14. (a) (i) With the help of neat sketch, explain the mechanism of material removal in EDM. (8)
- (ii) Find the condition for maximum power delivery to the discharging circuit in EDM. (8)

Or

- (b) Write short notes on the following :
- (i) Characteristics of spark eroded surface. (8)
- (ii) The principle of wire EDM process. (8)
15. (a) Explain the principles, machining system, process capabilities, applications and advantages of Laser Beam Machining with neat sketch. (16)

Or

- (b) (i) Describe the principles, equipments, process capabilities, applications and advantages of Abrasive Flow Machining. (8)
- (ii) Describe the applications and advantages of plasma in manufacturing industries. (8)
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