Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 51054

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2014.

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. List the important characteristics of unconventional machining processes.
2. What are the factors to be considered in selection of unconventional machining processes?
3. Name any four process variables that control the material removal rate in AJM process.
4. What are the applications of USM process?
5. What are etchants in Chemical Machining process?
6. List the advantages of ECM process.
7. Write a short note on dielectric fluid used in EDM process.
8. List out the applications of Wire EDM process.
9. What is the principle of Electron Beam Machining process?
10. Write a short note on Magnetic abrasive finishing.

PART B — (5 × 16 = 80 marks)

11. (a) Explain with case study, the needs of Unconventional Machining processes. (16)

Or

(b) (i) Classify the Unconventional Machining processes. (8)

(ii) Discuss the recent developments in unconventional machining processes. (8)

12. (a) (i) Sketch the water jet cutting unit and also explain the mechanism of jet cutting. (8)

(ii) Describe the mechanism involved in material removal in AJM process. (8)

Or

(b) (i) With a neat sketch, explain the working principle of ultrasonic machining process. (8)

(ii) Discuss the various process parameters that control MRR in USM process. (8)

13. (a) (i) Explain with a neat sketch, the Electro Chemical Grinding process. And also list its applications. (10)

(ii) What is the principle of Electro Chemical Honing process? (6)

Or

(b) (i) With a neat sketch, explain the chemical machining process. (10)

(ii) List the advantages and limitations of CHM process. (6)

14. (a) (i) Explain the break down mechanism in EDM process. (8)

(ii) With a neat sketch, explain any two power circuits used in EDM process. (8)

Or

(b) (i) Discuss the types of tool wear in EDM process (8)

(ii) Explain with a neat sketch, the Wire EDM process. (8)

15. (a) Explain with a neat sketch, the principle of Laser Beam Machining process. And also list its applications. (16)

Or

(b) (i) With a neat sketch, explain the process of plasma arc machining.(10)

(ii) Discuss the parameters of plasma cutting. (6)