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

Question Paper Code: 31973

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2016

Elective

Mechanical Engineering

01UME908 - UNCONVENTIONAL MACHINING PROCESSES

(Regulation 2013)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1. State the need of unconventional machining processes.
2. Classify the unconventional processes based on energy used.
3. Interpret cavitation erosion in ultrasonic machining process.
4. Recommend a formula to calculate materials removal rate during abrasive jet machining.
5. List five good properties of dielectric fluid used in Electrical Discharge Machining (EDM).
6. Explain why deionized water is used as dielectric in wire cut electrical discharge machining.
7. Recall four subsystems of electro chemical machining machine tool.
8. Point out the parameters that affect the material removal rate in electro chemical grinding process.
9. List the five important elements of plasma arc cutting system.
10. Give four specific applications where you feel EBM should be the preferable choice.

PART - B (5 x 16 = 80 Marks)

11. (a) Explain the need for unconventional machining processes and discuss its important characteristics. (16)

Or

(b) Classify in detail about unconventional machining processes and describe on hybrid machining processes. (16)

12. (a) Elucidate the working principle of abrasive jet machining with its advantages and limitations. (16)

Or

(b) Summarize the principle of working of ultrasonic machining process with applications and also discuss the factors influencing the performance of USM process. (16)

13. (a) Demonstrate how the material is removed from work piece by heat energy in thermoelectric process and also express the importance of dielectric fluid. (16)

Or

(b) Discuss in detail on working principle of wire EDM with its four basic elements and also write about its process characteristics. (16)

14. (a) Explain the working principle of electro chemical machining with its applications, advantages and limitations. (16)

Or

(b) Summarize the working of electro chemical grinding process considering its process parameters and also mention three of its applications. (16)

15. (a) With a neat sketch give details on working principle of laser beam machining and also discuss its applications. (16)

Or

(b) Clarify the working principle of electron beam machining process also discuss about its process parameters. (16)

———————