

[Total No. of Questions - 9] [Total No. of Printed Pages - 3]
(2125)

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B. Tech 7th Semester Examination
Modern Manufacturing Processes (NS)
ME-411(a)

Time : 3 Hours

Max. Marks : 100

The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

Note : This question paper carries five sections. Attempt any five questions selecting atleast one question each from section A, B, C & D. Section E is compulsory.

SECTION - A

1. (a) Explain the need of modern manufacturing process in industry. Also compare the modern manufacturing process with conventional manufacturing processes. (12)
- (b) What types of tool materials, tool holders are used in ultrasonic machining? (8)
2. (a) Explain the working principle of ultrasonic machining with the help of neat diagram. (12)
- (b) Broadly classify the modern manufacturing processes. Explain with one example of modern manufacturing process. (8)

SECTION - B

3. (a) What is the difference between abrasive jet machining and water jet machining? Explain. (12)

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- (b) Explain working principle of ECM with neat diagram. (8)

4. (a) Explain working principle, process characteristics, equipment used, advantages, disadvantages and applications of abrasive jet machining. (20)

SECTION - C

5. Compare EDM and LBM on the basis of (i) working principle, (ii) tool used, (iii) accuracy and (iv) applications. (20)
6. (a) Explain in detail mechanism of metal removal with the help of electric discharge machining. (12)
- (b) Explain the metallurgical effect on the material when it is machined with the help of laser beam machining. (8)

SECTION - D

7. (a) Explain the mechanism of metal removal with the help of plasma arc machining. (12)
- (b) Explain how electron beam is generated and control in electron beam machining with the help of neat sketch. (8)
8. Distinguish between PAM and EBM on the basis of (i) working principle, (ii) tool used, (iii) accuracy and (iv) applications. (20)

SECTION - E
(Compulsory Question)

9. Write short answers of the following:
 - (a) Limitation of ultrasonic machining process.
 - (b) Advantage of modern manufacturing process.

- (c) Advantage and disadvantage of ECM.
- (d) Elements of ECM process.
- (e) How does increasing discharge current affect metal removal rate and surface finish in electrical discharge machining?
- (f) State two specific applications of (i) EDM and (ii) LBM.
- (g) Identify two major disadvantages of plasma arc cutting.
- (h) State the limitations of electron beam machining.
- (i) List some safety precautions taken while conducting PAM.
- (j) Mention the list of equipments for D.C. plasma torch unit.
(2×10=20)