

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

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B. Tech 6th Semester Examination

Machine Tools (OS)

ME-6003

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 : Attempt five questions in all selecting one question from each section A, B, C, D and Section E is compulsory.

SECTION - A

1. (a) Define machine tool. What is the general requirement of machine tools? Classify different type of machine tools.
(b) What are the various types of drive employed for operation of machine tools? Discuss their relative merits.
(10×2=20)

OR

2. (a) What can be the source of errors in machining a metal on machine tool? Define chatter in a machine tool.
(b) Compare cast structure with welded structure for machine tool. What are the four fundamental types of slides and what are the considerations for designing sideways?
(10×2=20)

SECTION - B

3. (a) How is the lathe sizes determined? Describe three important methods of holding work in a lathe.

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- (b) Name and describe with sketch the three method of turning tapers on a lathe.
(10×2=20)

OR

4. (a) Describe the process of cutting internal threading on a lathe. Explain when are magnetic checks used for lathe operations.
(b) What is a relieving attachment and for what purpose is it used? Explain with suitable sketch.
(10×2=20)

SECTION - C

5. (a) What machining operation can be done on a milling machine? Describe the functions of knee, column and saddle in a milling machine.
(b) What are the work holding devices used in milling machine? Explain any two with neat sketch? (10×2=20)

OR

6. (a) Explain the principle of the milling machine with neat sketch. Distinguish between the conventional milling and the climb milling and give advantages of each.
(b) What are the different type of drills? Explain the function of each type of drill in details.
(10×2= 20)

SECTION - D

7. (a) Explain in details the difference between NC and CNC machine. Write down in details the different machine tool of NC.
(b) What are the fundamentals of part programming? What is the difference in between incremental and absolute programming?
(10×2=20)

OR

8. (a) What are the various programming code used in the CNC part programming? What are the advantages and disadvantages of CNC machine?
- (b) Describe the basic requirements of CNC tooling. Describe with a neat sketch why multiple tool operations are better than single tool. (10x2=20)

SECTION - E

9. (i) Briefly describe the creep feed grinding.
- (ii) Write a short note on dividing head.
- (iii) What is the difference between automatic lathe and a capstan lathe?
- (iv) Distinguish between left hand and right hand reamers?
- (v) Write a short note on rake angle in drilling.
- (vi) Write short note on slotting machine.
- (vii) Explain the honing operation.
- (vii) Explain the working of broaching operation.
- (xi) Describe the advantages of CNC machine over NC machine.
- (x) What are the different types of grinding machine? (10x2=20)