



# MAULANA ABUL KALAM AZAD UNIVERSITY OF TECHNOLOGY, WEST BENGAL

Paper Code : PC-ME601 Manufacturing Technology

Time Allotted : 3 Hours

Full Marks : 70

The Figures in the margin indicate full marks.

Candidate are required to give their answers in their own words as far as practicable

## Group-A (Very Short Answer Type Question)

1. Answer any ten of the following :

[ 1 x 10 = 10 ]

- (I) The operation of making a cone-shaped enlargement of the end of a hole is known as \_\_\_\_\_
- (II) The cutting tool in a milling machine is mounted on \_\_\_\_\_
- (III) During normalizing process of steel, the specimen is heated \_\_\_\_\_
- (IV) A coarse grained grinding wheel is used to grind \_\_\_\_\_
- (V) The increase in depth of cut and feed rate \_\_\_\_\_ surface finish.
- (VI) The binding material used in cemented carbide tools is \_\_\_\_\_
- (VII) When 3-2-1 principle is used to support and locate a three dimensional work-piece during machining, the number of degrees of freedom that are restricted is \_\_\_\_\_
- (VIII) The mechanism of material removal in EDM process is \_\_\_\_\_
- (IX) Quality screw threads are produced by \_\_\_\_\_
- (X) The tap used to cut threads in a blind hole is \_\_\_\_\_
- (XI) A drill bit of 20 mm diameter rotating at 500 r.p.m. with a feed rate of 0.2 mm/revolution is used to drill a through hole in a mild steel plate 20 mm thickness. What will be the depth of cut in this drilling operation?
- (XII) What type of chips are produced during machining of Cast iron?

## Group-B (Short Answer Type Question)

Answer any three of the following

[ 5 x 3 = 15 ]

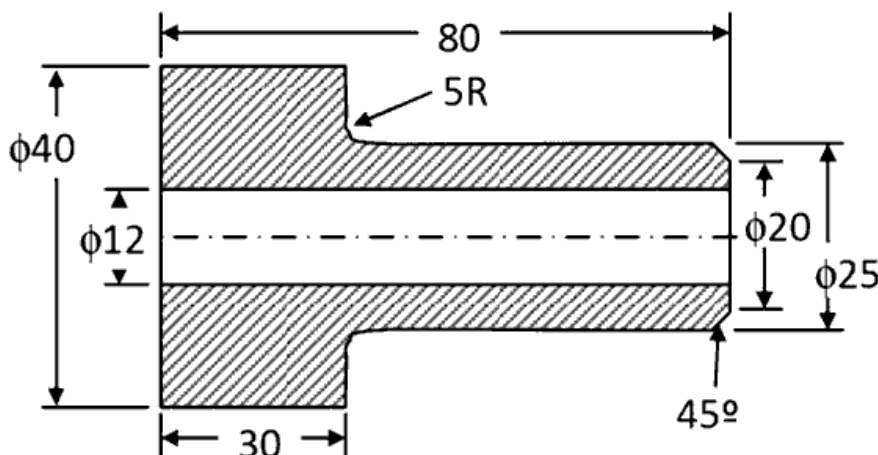
2. What is FMS? State about various components of FMS. [ 5 ]
3. Describe USM process with an illustrative sketch. Name two important process [ 5 ]
4. Distinguish between NC and CNC machine. [ 5 ]
5. In Abrasive Jet Machining, why abrasive particles cannot be reused? [ 5 ]
6. What is LBM? [ 5 ]

## Group-C (Long Answer Type Question)

Answer any three of the following

[ 15 x 3 = 45 ]

7. Prepare manual part programming for turning the component shown in Fig. on CNC lathe using ISO code. Assume the tool tip radius is 2 mm [ 15 ]



8. a) Give a schematic diagram of a FMS and explain the functions of its various components. [ 7+8 ]  
b) What are different types of transfer lines explain briefly?
9. Write short notes on any three of the following: [ 15 ]  
a) Stereo lithography (SLG)  
b) fused deposition modelling (FDM)  
c) Hybrid Machining  
d) 3-D Inkjet Printing  
e) Open loop and Closed loop control system in CNC
10. a) Discuss about the co-ordinate measuring machines. [ 7+8 ]  
b) Describe the application of automated integration in CAD/CAM /CIM system.
11. a) In an electrochemical machining process with a pure iron work piece, a removal rate of 5 cm<sup>3</sup>/min is desired. Determine the current required. [ 7+8 ]  
The gram atomic weight, valency and density of iron are 56 gm, 2, 7.8 gm/ cm<sup>3</sup> respectively.  
b) In ECM process, why is electrolyte flow necessary ? Explain the reasons for poor surface finish in an ECM process.

\*\*\* END OF PAPER \*\*\*

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