



(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 141801

Roll No.

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B. Tech.

(SEM. VIII) THEORY EXAMINATION, 2014-15
ADVANCED MANUFACTURING SYSTEMS

Time : 3 Hours]

[Total Marks : 100

Note : Attempt all five questions, as instructed. Marks are indicated alongside.

1 Answer any four 5×4=20

- (a) What is automation? What are its types?
- (b) What is CAM?
- (c) Differentiate between Open loop and Closed loop NC system?
- (d) What is full -form of CNC, DNC, NC and PLC?
- (e) What do you mean by Total Quality Management?
- (f) Write down the factors affecting make-buy decision?

2 Answer any four 5×4=20

- (a) What is adaptive control system? Mention its advantages to the manufacturing technology?
- (b) Explain in detail the economics involved in Quality Assurance?

- (c) Discuss various process control techniques to accept the component?
- (d) Define CNC Machine? Explain the advantages and disadvantages of CNC Machine?
- (e) Write short notes on Concurrent Engineering?
- (f) What do you mean by depreciation? Explain with example?

3 Answer any two 10×2=20

- (a) What do you mean by CAPP? Explain various types CAPP in detail?
- (b) What is Group Technology? Discuss in brief its applications in manufacturing. Give a list of the methods used for coding and classification of parts. Describe the two important types of coding schemes.
- (c) Define FMS clearly by showing the various desirable features /components that are required for proper functioning with reference to current day manufacturing scene?

4 Answer any two 10×2=20

- (a) Write down the benefits usually cited for CNC machine compared to using manual alternative methods? Enlist any ten G codes and M codes?
- (b) It is desired to determine how many vehicles will be required to satisfy demand for a particular AGVS. The system must be capable of making 40 deliveries/h. The following specifies the performance characteristics of the system:

Vehicle velocity	=	150 ft/min
Average distance travelled per delivery	=	450ft.
Pick-up time	=	45 s (0.75 min)

Drop-off time = 45 s (0.75 min)

Average distance travelling

empty = 300 ft

Traffic factor = 0.90

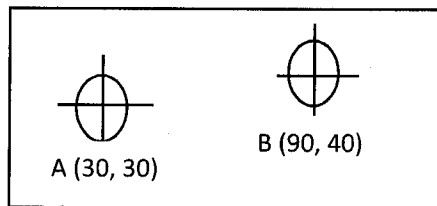
Determine the number of vehicles required to satisfy the delivery demand. Also determine the handling system efficiency.

- (c) Define FMS. Explain various lay-outs of FMS. Mention advantages and disadvantages of FMS.

5 Answer **any two**

10×2=20

- (a) Write MDI Programme to make a through hole in a C.I. plate as shown in figure below. Select suitable feed and speed for each operation. Hole size =10H6 mm. The plate is having initial hole of size 5 mm. The thickness of the plate is 30 mm. Explain clearly the number and type of the tools used for this purpose.



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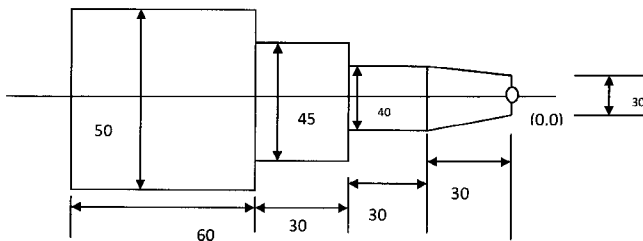
- (b) Three holes of diameter 10 mm are to be drilled in a solid. The details are given below:

Absolute locations: A 25,40 (mm)
 B 66,55 (mm)
 C 80,75 (mm)

Feed 150 mm/min
 Speed 1000 rpm
 R-plane 2 mm above the -work surface
 Over-run 1 mm
 Plate thickness 20 mm

Prepare MDI part program by using canned cycle.
 Explain clearly the number and type of the tools used for this purpose.

- (c) Write MDI part program for following job. (All dimensions are in mm)



Work material = Aluminium
 Blank length = 150 mm
 Blank diameter = 50 mm

Select suitable depth of cut, feed and speed. Explain clearly the number of cuts required for each surface.