

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

PAPER ID : ME11

Roll No.

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M. TECH. (Sem.II)

THEORY EXAMINATION 2015-16
MANUFACTURING AUTOMATION

Time : 3 Hours

Total Marks : 100

Note : Attempt any five questions. All questions carry equal marks.

1. (a) Explain briefly the different types of automated assembly systems.
- (b) What is the industrial robot? Discuss its anatomy in detail.
2. (a) Explain briefly the part feeding devices.
- (b) Describe the basic configurations commonly available in commercial industrial robot? Explain any two.
3. (a) Describe the differences in orientation capabilities and work volumes for a TR and a RT wrist assembly with neat sketches?
- (b) Explain the leadthrough programming of a robot.

4. (a) Describe different robot programming languages? Write short notes on motion programming.

(b) What are the essential characteristics of a spot welding manipulator?

5. (a) Describe the characteristics of robot applications.

(b) Tabulate the advantages and disadvantages of different sensors, which can be used to obtain controlling information in robotic systems.

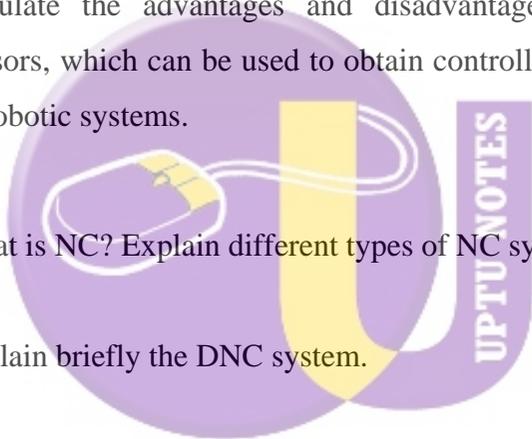
6. (a) What is NC? Explain different types of NC systems.

(b) Explain briefly the DNC system.

7. (a) Write short notes on tape formats?

(b) Explain retrieval CAPP system and also write their advantages.

8. (a) Explain briefly the material handling systems.



- (b) Write a complete APT program for a part as shown in fig. 1. Assuming that the workpiece is a plain carbon steel plate, cut out in the rough shape of the part outline.

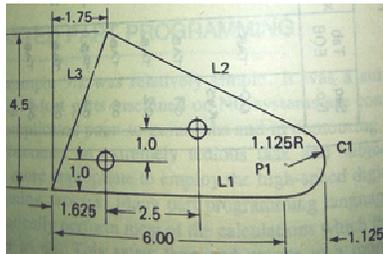


Fig. 1

The tool is a two flute, 0.5 in. diameter, high speed steel end milling cutter. The cutting speed= 75ft/min and feed= 0.002 in./twin.

