B.TECH SEM – VI (2007 COURSE) (PRODUCTION ENGG.) :
WINTER - 2017

SUBJECT: ADVANCED MANUFACTURING SYSTEM

Day : **Monday**
Date : **20/11/2017**

W-2017-2529

Time : **10.00 AM TO 01.00 PM**
Max Marks : 80

N.B.

1) **Q. No. 1** and **Q. No. 5** are **COMPULSORY**. Out of the remaining attempt any **TWO** questions from each Section.
2) Figures to the right indicate **FULL** marks.
3) Answer to the both the section should be written in **SEPARATE** answer book.
4) Use non-programmable electronic calculator is **ALLOWED.**

SECTION-I

Q.1 **a)** What is the significance of storage buffers in automated flow lines? **(04)**

b) Describe the types of plotters. **(05)**

c) What is meaning of canned cycle? Explain the following codes with sketches: G41, G81. **(05)**

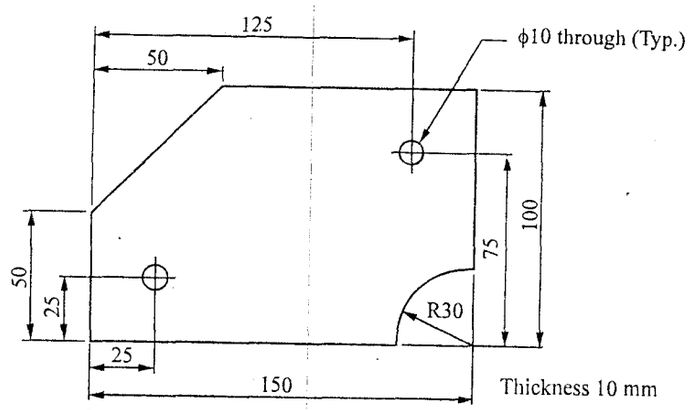
Q.2 **a)** Discuss the analysis of transfer lines without storage buffer. **(06)**

b) Explain in brief the following contact inspection techniques – **(07)**
i) Co-ordinate measuring machine
ii) Stylus type surface texture measuring machines.

Q.3 **a)** Describe the process of Image generation in computer Graphics. **(06)**

b) Discuss the concept of geometric modeling and explain, **(07)**
i) Wireframe modeling
ii) Solid modeling
iii) Surface modeling

Q.4 Write a manual part program for the component shown in figure below. Assume the raw product as cast iron and the machining is to achieve the various dimensions. **(13)**



ALL DIMENSIONS ARE IN MM.

P.T.O.

SECTION - II

Q.5 **a)** What is FMS? Discuss the benefits of FMS. **(04)**

b) Explain different types of robot joints with neat sketches. **(05)**

c) Explain the energy sources used for micro-machining. **(05)**

Q.6 **a)** Explain in detail the building blocks of FMS. **(06)**

b) Apply the rank order clustering technique to the part-machine incidence matrix in the following table to identify logical part families and machine groups. Parts are identified by letters and machines are identified by numbers. **(07)**

Parts

Machines	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**
1			1	1	1				
2	1	1					1	1	1
3						1	1	1	
4	1	1		1					
5			1		1				
6		1						1	1
7	1		1	1					
8		1				1		1	1

Q.7 **a)** What is gripper? Explain various types of grippers with their applications. **(06)**

b) Discuss the following characteristics of a robot, **(07)**
i) Spatial resolution
ii) Accuracy
iii) Repeatability

Q.8 **a)** Explain in detail, the micro-EDM process with neat sketch. **(07)**

b) What is Nano? Explain in brief the Nano manufacturing. **(06)**

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