

OR**Code No. OR-NRB0401**

JAWAHARLAL NEHRU TECHNOLOGY UNIVERSITY, HYDERABAD
M .Tech. II Semester Supplementary Examinations, March – 2009
COMPUTER AIDED MANUFACTURING
(CAD/CAM)

Time: 3 hours**Max. Marks.60**

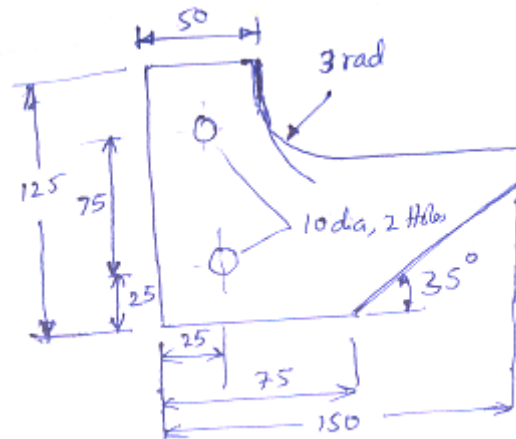
Answer any Five questions
All questions carry equal marks

- 1.a) State and explain reasons for automation in manufacturing industry.
- b) The average part produced in a certain batch manufacturing plant must be processed through an average six machines. Twenty (20) new batches of parts are launched each week average operation time is 6 min, average setup time 5 hr, average batch size is 25 parts and average nonoperation time per batch is 10 hr/machine. There are 18 machines in the plant. The plant operates an average of 70 production hours per week. Scrap rate is negligible. Determine
- a) MLT for an average part b) Plant capacity c) Plant utilization.
- 2.a) What are the various transfer mechanisms used in automated flow line? Explain any one with neat sketch.
- b) Following are the precedence relationship and element times for a new model. Construct the precedence diagram for this job. If the ideal time = 1.1 min, repositioning time = 0.1min, and uptime proportion is assumed to be 1.0, what is the theoretical minimum number of workstations required to minimize the balance delay under the assumption that there will be one worker per station. Use largest candidate rule to assign work elements to stations.

Work Element	$T_c(\text{min})$	Immediate Precedence
1	0.5	-
2	0.3	1
3	0.8	1
4	0.2	2
5	0.1	2
6	0.6	3
7	0.4	4,5
8	0.5	3,5
9	0.3	7,8
10	0.6	6,9

Contd....2

- 3.a) Explain two basic types of motion controls in NC system.
- b) Explain CNC and DNC systems. What are the advantages of these systems.
- 4.a) What is manual part programming? State its limitations.
- b) Write the APT geometry statements to define the part geometry for the figure given below. Use the lower left corner of the part as the origin in the x-y axis system.



- 5.a) What are the various classification and coding system in G T.
- b) Explain multiclass coding system in G T with an example.
- 6.a) Define flexible manufacturing system. What are the types of FMS.
- b) Explain various components in FMS system.
- 7.a) State and explain computer aided process planning.
- b) With block diagram explain Retrieval CAPP system.
8. Write short note on:
 - a) Capacity planning
 - b) Computer process monitoring & control
 - c) Adaptive control in CNC machine tools.