Code No: B0403/D0410 **NR/R09**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
M. Tech II- Semester Regular Examinations September, 2010
COMPUTER AIDED PROCESS PLANNING
(CAD / CAM)

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

Answer any five questions
All questions carry equal marks
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1. An overage of 20 new orders are started through a certain factory each month. On average, an order consists of 50 parts to be processed through 10 machines in the factory. The operation time per machine for each part = 15 min. The non operation time per order at each machine averages 8 hours and the required set up time per order = 4 hour. There are 25 machines in the factory. 80% of which are operational of any time (the other 20% are in repair or maintenance). The plant operates 160 hour/month. However, the plant manager complaints that a total of 100 over time machine hours must be authorized each month in order to keep up with the production schedule.
   a) What is the manufacturing lead time for an average order?
   b) What is the plant capacity/ month?
   c) What is the utilization of the plant according to the definition?
   d) Determine the average level of work in process in the plant.
   e) Determine WIP ratio and TIP ratio.

2. What are the methods of tolerance allocation and explain them.

3.a) Discuss the computer simulation of automated flow lines and list the simulation packages available in the market.

b) An eight station rotary indexing machine operates with an ideal cycle time of 20 seconds. The frequency of line stop occurrences is 0.06 stop/cycle on the average. When a stop occurs, it takes an average of 3 min to make repairs. Determine the following
   a) Average production time
   b) Average production rate
   c) Line efficiency
   d) Proportion of down time.

4. Explain the “MULTI CLASS” system of classification and coding system with example.

5. List the benefits of group technology and explain any four of them in detail.

6. Discuss about the “knowledge based production planning” system and explain any one tool available for it.

7. What are the methods for optimal selection of machining parameters and explain the reasons behind it.

8. Explain the following terms
   a) Design tolerances
   b) Manufacturing tolerances
   c) MIPLAN system.

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