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Question Paper Code: BCC006



INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

M.Tech II Semester End Examinations (Regular) - July, 2017

Regulation: IARE-R16

FLEXIBLE MANUFACTURING SYSTEMS

(CAD/CAM)

Time: 3 Hours

Max Marks: 70

Answer ONE Question from each Unit

All Questions Carry Equal Marks

All parts of the question must be answered in one place only

UNIT – I

1. (a) Explain various modes of manufacturing in flexible manufacturing systems. [7M]
(b) What are the different problems concerned in regular manufacturing process. [7M]
2. (a) Explain what is low volume manufacturing of small batch manufacturing and their applications. [7M]
(b) What are the aims, technical performance, improve order development and objects of flexible manufacturing systems. [7M]

UNIT – II

3. (a) Explain backward scheduling approach in manufacturing, period of time and delivery with finite capacity loading. [7M]
(b) Distinguish between Real time vs.- discrete event control. [7M]
4. (a) What is a dead lock in modeling. what are strategies used for dealing with dead locks. [7M]
(b) Explain forward scheduling approaches with infinite capacity loading. [7M]

UNIT – III

5. (a) A 20 - station transfer line is being proposed to machine a certain component currently produced by conventional methods. The proposal received from the machine tool builder states that the line will operate at a production rate of 50 pc/hr at 100% efficiency. From similar transfer lines, it is estimated that breakdowns of all types will occur with a frequency $F = 0.10$ breakdown per cycle and that the average downtime per line stop will be 8.0 min. The starting casting that is machined on the line costs \$ 3.00 per part. The line operates at a cost of \$ 75.00/hr. The 20 cutting tools (one tool per station) last for 50 parts each, and the average cost per tool = \$ 2.00 per cutting edge Based on this data, compute the following: [7M]
 - i. Production rate
 - ii. Line efficiency
 - iii. Cost per unit piece produced on the line
- (b) Write a short note on limitations of simulation and factors of level of realism. [7M]

6. (a) Write a brief note on Petrinets and places of transition of Perinet. [7M]
(b) Explain in brief the concept Markov Chains and process with examples if necessary. [7M]

UNIT – IV

7. (a) Explain about tools, equipment, resource capabilities and optimizing manufacturing systems? [7M]
(b) Explain the manufacturing system analysis in flexible manufacturing systems. [7M]
8. (a) Explain the heuristic oriented approach in flexible manufacturing systems. [7M]
(b) Explain the transient analysis of manufacturing facilities in demand. [7M]

UNIT – V

9. (a) Write a note on acceptance sampling to develop inspection plan. [7M]
(b) Explain the difficulties in implementation of flexible manufacturing systems. [7M]
10. (a) Explain the dual card system of KANBAN with diagram. [7M]
(b) Explain the methods of Deburring in flexible manufacturing systems. [7M]

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