

Code No: 07A81402**R07****SET 1**

B.Tech IV Year II Semester Examinations, April/May-2012
FLEXIBLE MANUFACTURING SYSTEMS
(MECHANICAL ENGINEERING (MECHATRONICS))

Time: 3 hours**Max. Marks: 80**

Answer any five questions
All questions carry equal marks

1. What are the benefits of FMS and explain the need of FMS in modern manufacturing environment. [16]
2. What is flexible manufacturing cell? With a neat sketch explain flexible cell. [16]
3. Define group technology. Explain Optiz coding system generally used in group technology. [16]
4. Explain Rank Order Clustering technique for grouping parts and machines in GT concept of cellular manufacturing. [16]
5. What are the functions performed by material handling and storage system in FMS? [16]
6. How to increase utilization, production rate and sizing of FMS? Discuss with numerical concept. [16]
7. What are the differences between retrieval and generative type of computer aided process planning? State their merits. [16]
8. Write a short note:
 - a) Access methods and manufacturing automation protocol.
 - b) Coordinate measuring machines. [16]

Code No: 07A81402**R07****SET 2**

B.Tech IV Year II Semester Examinations, April/May-2012
FLEXIBLE MANUFACTURING SYSTEMS
(MECHANICAL ENGINEERING (MECHATRONICS))

Time: 3 hours**Max. Marks: 80**

Answer any five questions
All questions carry equal marks

1. What are the major elements of FMS? State the applications of FMS. [16]
2. Explain different types of flexibility in manufacturing in FMS concept. [16]
- 3.a) What are the advantages of GT?
b) What is the method used for forming cells in group technology? Explain with an example? [16]
4. State the merits of GT? Explain composite part concept followed in group technology. [16]
5. What are the planning and implementation issues of flexible manufacturing system installation in manufacturing or assembly environment? [16]
6. Explain following FMS analysis techniques:
a) Deterministic model,
b) Queuing model and
c) Discrete event simulation. [16]
7. Define CAPP. Discuss the methodology to be followed for developing a retrieval type for computer aided process planning system. [16]
8. Write short note:
a) Methods of computer communication in manufacturing and local area networks.
b) Contact and non contact measurements. [16]

Code No: 07A81402**R07****SET 3**

**B.Tech IV Year II Semester Examinations, April/May-2012
FLEXIBLE MANUFACTURING SYSTEMS
(MECHANICAL ENGINEERING (MECHATRONICS))**

Time: 3 hours**Max. Marks: 80**

**Answer any five questions
All questions carry equal marks**

1. Discuss the importance of material handling devices used in an FMS. [16]
2. What are the various layout configurations of FMS? Explain with suitable applications. [16]
- 3.a) Explain the concept of part family in Group Technology.
b) Discuss the multi-class method of part coding system in GT. [16]
4. Why production flow analysis is required in implementation of GT? Explain data collection and sortation of process routing steps in product flow analysis. [16]
5. Explain various functions performed by computer control system in FMS implementation. [16]
6. Explain the analysis of system performance measure in FMS related to production rate and utilization. [16]
- 7.a) List and explain the benefits of CAPP system.
b) Define CMM. Explain operational cycle of CMM. [16]
- 8.a) What are the characteristics of networks for communication in manufacturing environments?
b) Discuss computer network topologies applied in manufacturing. [16]

Code No: 07A81402**R07****SET 4**

**B.Tech IV Year II Semester Examinations, April/May-2012
FLEXIBLE MANUFACTURING SYSTEMS
(MECHANICAL ENGINEERING (MECHATRONICS))**

Time: 3 hours**Max. Marks: 80**

**Answer any five questions
All questions carry equal marks**

1. What do you understand by FMS? What are the components of FMS? [16]
2. Explain dedicated FMS and random order FMS applied in manufacturing industry. [16]
3. What are the limitations of group technology? Explain the relative benefits of Optiz system and multiclass coding system followed in GT. [16]
4. Explain rank order clustering technique for grouping machines in to cells. [16]
5. Explain five categories of FMS layout for effective material handling in the system. [16]
6. Discuss important factors to be considered for design of FMS. [16]
- 7.a) Explain the methodology to be followed for developing a generative type of CAPP system.
b) Explain optical and non optical techniques of inspection. [16]
8. Write short note:
a) Benefits of hierarchical structure of computers in manufacturing.
b) Manufacturing automation protocol.
c) In cycle gauging. [16]
