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Question Paper Code : P 1423

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2009.

Seventh Semester

Aeronautical Engineering

ME 1403 — COMPUTER INTEGRATED MANUFACTURING

(Common to Production Engineering, Mechatronics Engineering and Mechanical Engineering)

(Common to B.E. (Part-Time) Sixth Semester Mechanical Engineering – Regulation 2005)

(Regulation 2004)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What are the components of manufacturing system?

2. A total of 800 shafts must be produced in the lathe section of the machine shop during a particular week. Each shaft is identical and requires a machine cycle time 11.5 minutes. All of the lathes in the department are equivalent in terms of their capability to produce the shaft in the specified cycle time. How many lathes must be devoted to shaft production during the given week, if there are 40 hours of available time on each lathe?

3. By whom and when was Group technology first documented?

4. What is meant by rout sheet?

5. Classify FMS according to the king of operations performed.

6. What are the technologies used for automatic data collection?

7. Write short notes on 'CIMOSA'.

8. Differentiate LAN from MAN (networks).

9. What is Engineering Change Control?

10. List the features of RDBMS.

PART B — (5 × 16 = 80 marks)

11. (a) (i) Explain the basic elements of automation. (8)

(ii) Explain the capabilities of computer control that allow real time basics with process and the operator. (8)

Or

(b) (i) Explain the advanced automation functions. (8)

(ii) Discuss the role of marketing in manufacturing industries. (8)

12. (a) (i) How does cellular manufacturing help CAPP? Illustrate with an example. (8)

(ii) List the benefits of Group Technology. (8)

Or

(b) (i) Explain in detail the generative and variant approaches in process planning and differentiate both approaches. (8)

(ii) How parts are classified and coded in Group technology? Illustrate the same for a product. (8)

13. (a) List and explain the major I/O devices to keep track of ongoing shop-floor conditions. (16)

Or

(b) What makes the FMS flexible? Define the types of flexibility and explain its dependent factors. (16)

14. (a) List and explain the requirements for integrating manufacturing systems. (16)

Or

(b) Explain in detail various networking methods with necessary sketches. (16)

15. (a) Describe the salient features of MAP and TOP. (16)

Or

(b) (i) Draw the RDBMS architecture. (8)

(ii) What are the database requirements of CIM? (8)
