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10ME757

Seventh Semester B.E. Degree Examination, July/August 2022
Automation in Manufacturing

Time: 3 hrs.

Max. Marks:100

Note: Answer any FIVE full questions, selecting atleast TWO questions from each part.

PART – A

- 1 a. Define Automation and justify the use of Automation system in Industry. (10 Marks)
b. Explain different types of Automations with respect to product variety and product volume. (10 Marks)
- 2 a. Define the following Mathematical Models related to production concepts :
i) Production rate ii) Utilization iii) Manufacturing lead time
iv) Availability v) Work – in – process. (10 Marks)
b. How Manufacturing Costs are classified? Explain in brief. (10 Marks)
- 3 a. With a block diagram, explain the basic elements of an Automated System. (10 Marks)
b. Explain the principles followed in Advanced Automation function. (10 Marks)
- 4 a. Explain Work Transport Methods between Stations. (10 Marks)
b. Discuss different categories of Manufacturing system. (10 Marks)

PART – B

- 5 a. What are the benefits of Group Technology? (06 Marks)
b. Define FMS. List out its merits, demerits and applications. (14 Marks)
- 6 a. Explain Traditional and Modern Quality Control methods used in Industries. (10 Marks)
b. Explain Offline and Online Quality Control methods used in Taguchi. (10 Marks)
- 7 a. Differentiate between Contact and Non-Contact Inspection technologies. (05 Marks)
b. List the applications of CMM. (05 Marks)
c. Explain Image Processing and Analysis. (05 Marks)
d. Explain Ultrasonic Inspection Technique. (05 Marks)
- 8 Write a short note on :
a. Computer Aided Process Planning.
b. Concurrent Engineering.
c. Just – in – Time Production System.
d. Agile Manufacturing. (20 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg. 42+8 = 50, will be treated as malpractice.