PVP 12

Code: ME8T2B

IV B.Tech - II Semester – Regular Examinations – April 2016

AUTOMATION IN MANUFACTURING
(MECHANICAL ENGINEERING)

Duration: 3 hours Max. Marks: 70

Answer any FIVE questions. All questions carry equal marks

1. Discuss with suitable examples the following automation Principles and Strategies. 14 M

a) USA Principle

b) Ten strategies for automation and production systems.

c) Automation Migration Strategy.

2.

a) Enumerate the differences between synchronous and asynchronous transfer mechanisms. 7 M

b) Distinguish between logistics and supply chain. 7 M

3. A 20-station transfer line is divided into two stages of 10 stations each. The ideal cycle time of each stage is 1.2min. All of the stations in the line have the same probability of stopping. P=0.005. Assume that the down time is constant when a breakdown occurs and is 8 min. using Upper-bound approach, compute the line efficiency and production rates for the following buffer capacities. 14 M

a) b=0 b) b=∞ c) b= 10 d) b=100.

4. Explain with an example the kilbridge and Wester method used in a line balancing problem. 14 M

5. What are the different types of automated material handling systems and describe their functions. 14 M

6.

a) Explain the various problems encountered in interfacing handling and storage systems with manufacturing units. 7 M

b) What are the special features of AS/RS components? Discuss briefly. 7 M

7. Draw the block diagram of Adaptive Control with Optimization system for milling and explain each block in detail. 14 M

8. With the help of an example explain the implementation of concurrent engineering in product development. 14 M