

Roll No.

Total No. of Pages : 02

Total No. of Questions : 09

B.Tech. (Mechanical Engineering) (Sem.-7,8)

AUTOMATION IN MANUFACTURING

Subject Code : BTME-702/18

M.Code : 90475

Date of Examination : 14-06-2024

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. Write briefly :

- a) State the principal difference between adaptive control system and conventional closed loop control system.
- b) List out the components in Pneumatic system.
- c) What are the four basic components of nearly all automated storage/retrieval systems?
- d) What are the reasons for automation?
- e) What are the components used in hydraulic circuits with automation?
- f) What are the advantages of hydraulic actuation systems?
- g) What is a production system?
- h) What is partial automation?
- i) What are the three major categories used to accomplish assembly of components?
- j) What is the primary objective of a guiding system?

SECTION-B

2. What is automation? Discuss various types of automation.
3. What is the objective of Adaptive Control with Constraints? Draw the block diagram of a typical computerized Adaptive Control with Constraints system for drilling operation and explain in detail.
4. What are the important pneumatic components used in automated system? Describe briefly.
5. How does the cutting forces and temperature parameters are considered in adaptive control system?
6. What are the various situations where automation is preferred over manual labour?

SECTION-C

7.
 - a) Discuss the reasons for implementation of automated systems in the manufacturing industries.
 - b) What are the different types automation? Discuss them briefly.
8. What do you mean by adaptive control? Explain its types with neat diagrams?
9. **Elaborate the following in detail :**
 - a) Flexible automation
 - b) Rigid automation
 - c) Production rate
 - d) Plant capacity.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.