

**Code No: 157AP****JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD****B. Tech IV Year I Semester Examinations, January/February - 2023****AUTOMATION IN MANUFACTURING****(Mechanical Engineering)****Time: 3 Hours****Max. Marks: 75****Note:** i) Question paper consists of Part A, Part B.

ii) Part A is compulsory, which carries 25 marks. In Part A, Answer all questions.

iii) In Part B, Answer any one question from each unit. Each question carries 10 marks and may have a, b as sub questions.

**PART – A****(25 Marks)**

- 1.a) Mention the significance of automation in manufacturing. [2]
- b) List the limitations of hydraulic circuits. [3]
- c) Outline the advantages of automated flow lines. [2]
- d) Label the general terminology of automated flow lines. [3]
- e) List the applications of assembly system. [2]
- f) Summarize the importance of line balancing. [3]
- g) Outline the limitations of automated storage system. [2]
- h) List the applications of automated guided vehicle systems. [3]
- i) Relate the impact of sensors in industrial controls. [2]
- j) Explain logic controls in brief. [3]

**PART – B****(50 Marks)**

2. Discuss the components and circuit of pneumatic system with neat diagram. [10]
- OR**
- 3.a) Explain automation in machine tools.
  - b) Evaluate mechanical feeding system. [5+5]
4. Analysis of Automated flow lines in detail. [10]
- OR**
- 5.a) Explain partial automation.
  - b) Evaluate the implementation of automated flow lines. [5+5]
6. Develop the line balancing methods in detail. [10]
- OR**
7. Discuss flexible assembly lines with neat diagram. [10]
8. Evaluate the types of equipment used for automated material handling. [10]
- OR**
- 9.a) Explain the functions of automated material handling.
  - b) Justify the interfacing handling and storage with manufacturing. [4+6]
10. Build data communication and LAN in Manufacturing. [10]
- OR**
11. Evaluate BPE logistics and software configuration of BPE. [10]

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