

Code No: 127AR

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech IV Year I Semester Examinations, July/August - 2022

AUTOMATION IN MANUFACTURING

(Mechanical Engineering)

Time: 3 Hours

Max.Marks:75

**Answer any five questions
All questions carry equal marks**

- 1.a) What is meant by Automation Migration strategy? Explain it with a suitable diagram in detail?
- b) What are the important mechanical feeding devices used in automated systems? Discuss them briefly. [8+7]
- 2.a) Discuss the reason for implementation of automated systems in the manufacturing Industries.
- b) What are the various strategies of automation? State the advantages of automation in manufacturing industry. [8+7]
- 3.a) Explain reasons for using storage buffers in automated flow lines in detail.
- b) What are the methods of transporting work pieces on flow lines? Explain them in detail. [8+7]
- 4.a) What is the use of assembly lines? What is safety and quality monitoring in control function?
- b) What are the three configurations of automated flow lines? Explain in detail. [8+7]
- 5.a) Discuss the various material characteristics, factors which influence the design of the material handling system in detail.
- b) What is automated guided vehicle system and its importance in material handling in detail? [8+7]
- 6.a) Give the importance of precedence diagram in line balancing. Write short note on flexible assembly lines.
- b) Explain the various types of line balancing methods in detail. [8+7]
- 7.a) Discuss the effect of various constraints such as cutting force, temperature, vibration, and acoustic emission on adaptive control in detail.
- b) Distinguish between automated storage system and retrieval system in detail. [8+7]
- 8.a) With a neat sketch, explain the four basic steps of rapid proto typing techniques. Describe the Stereo Lithography (SLA) technology in detail.
- b) What do you mean by concurrent engineering? Explain in detail. [10+5]

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