

# GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER-VII (NEW) EXAMINATION – WINTER 2024

**Subject Code:3171508**

**Date:27-11-2024**

**Subject Name: Factory Automation**

**Time:10:30 AM TO 01:00 PM**

**Total Marks:70**

**Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

|     |                                                                              | MARKS |
|-----|------------------------------------------------------------------------------|-------|
| Q.1 | (a) How automation in production system is beneficial?                       | 03    |
|     | (b) Explain levels of automation.                                            | 04    |
|     | (c) Explain automation in production system with real life application.      | 07    |
| Q.2 | (a) What are principles of automation?                                       | 03    |
|     | (b) Which are the basic Elements of an Automated System?                     | 04    |
|     | (c) Explain Flow lines & Transfer Mechanisms in automated industries.        | 07    |
|     | <b>OR</b>                                                                    |       |
|     | (c) Write short note on Fundamentals of Transfer Lines                       | 07    |
| Q.3 | (a) What are the basic Principles of material handling system in industries? | 03    |
|     | (b) Discuss material handling system in automated system.                    | 04    |
|     | (c) Write note on Automatic Identification Methods in industries.            | 07    |
|     | <b>OR</b>                                                                    |       |
| Q.3 | (a) Explain Manufacturing Cells.                                             | 03    |
|     | (b) Explain components of manufacturing systems.                             | 04    |
|     | (c) Differentiate Process Industries and Discrete Manufacturing Industries.  | 07    |
| Q.4 | (a) What is cellular manufacturing?                                          | 03    |
|     | (b) State advantages of cells in cellular manufacturing.                     | 04    |
|     | (c) What is group technology? Explain in detail.                             | 07    |
|     | <b>OR</b>                                                                    |       |
| Q.4 | (a) Write down Inspection Principles                                         | 03    |
|     | (b) Give comparison of traditional and modern quality control methods.       | 04    |
|     | (c) Explain FMS in details.                                                  | 07    |
| Q.5 | (a) Why inspection is necessary in industry?                                 | 03    |
|     | (b) Explain material storage systems.                                        | 04    |
|     | (c) What are SPC tools? Explain any one in details.                          | 07    |
|     | <b>OR</b>                                                                    |       |
| Q.5 | (a) What is LAN?                                                             | 03    |
|     | (b) Explain computer based industrial control with example.                  | 04    |
|     | (c) Explain SCADA in details.                                                | 07    |

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