

GUJARAT TECHNOLOGICAL UNIVERSITY

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

Subject Code:3171515

Date:19-11-2024

Subject Name: Six Sigma and Lean Manufacturing

Time:10:30 AM TO 01:30 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) What is meaning of 'Six Sigma'? **03**
(b) What are the benefits of using Lean Six Sigma? **04**
(c) How are Six Sigma & TQM related? **07**
- Q.2** (a) What is meaning of 'Lean Manufacturing'? **03**
(b) Explain some of the critical principles of six sigma. **04**
(c) Explain the relationship between lean manufacturing and six sigma. **07**
- OR**
- (c) Enumerate the management of change acceleration process in a firm and its advantages. **07**
- Q.3** (a) What is Value Stream Mapping? **03**
(b) State some of the Quality Management tools in Six Sigma. **04**
(c) How is Kaizen implemented in an organization? **07**
- OR**
- Q.3** (a) What are the tools of Lean Six Sigma? **03**
(b) What is the difference between the Six Sigma DMAIC and DMADV methodologies? **04**
(c) Briefly describe process capability and how to measure Cp and Cpk, with practical examples. **07**
- Q.4** (a) Who forms the part of the Six Sigma implementation team? **03**
(b) What is meant by COPQ in Six Sigma? **04**
(c) Illustrate the focus on waste and overproduction with example. **07**
- OR**
- Q.4** (a) What is the economics of six sigma? **03**
(b) What is QFD? State its the applications of QFD. **04**
(c) Discuss the concept of TPM in relation to lean six sigma. **07**
- Q.5** (a) What is the definition of DPMO or DPPM? **03**
(b) List the various customer metrics to be considered with suitable examples. **04**
(c) Brief about design for six sigma. **07**
- OR**
- Q.5** (a) What is CTQ Tree? **03**
(b) Illustrate with examples: Cost of Doing Nothing. **04**
(c) Discuss FMEA process in detail. **07**
