

Maharshi Karve Stree Shikshan Samstha's

Smt. Hiraben Nanavati Institute of Management & Research for Women

INTERNAL EXAMINATION – Sem II – (Jan- July 2026)

SUBJECT –:Six Sigma for Operations

Date : 13-05-2026

SUBJECT CODE – OSCM 661 MJ-

Pattern : 2024

Duration : 150 min

Max Marks : 50

Instructions for students :

- Marks are indicated for each question.
 - Handwriting should be eligible for evaluation.
 - Marks will be given for quality, not quantity.
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Q.1 Solve any Five out of Eight. (10 Marks)

- a) Define Six Sigma and state its objectives.
 - b) What is DMAIC methodology?
 - c) Define SIPOC model.
 - d) What is Process Capability Analysis?
 - e) Define Accuracy and Precision in measurement systems.
 - f) What is Failure Mode and Effect Analysis (FMEA)?
 - g) State any two Seven QC Tools.
 - h) Define Design for Six Sigma (DFSS).
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Q.2 Solve any Two out of Three. (10 Marks)

- a) Explain the evolution and philosophy of Six Sigma with reference to quality gurus like Deming, Juran and Crosby.
 - b) Discuss the DEFINE phase of DMAIC with suitable examples.
 - c) Explain Measurement System Analysis with reference to Accuracy, Precision and R&R studies.
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Q.3 Solve any Two out of Three. (10 Marks)

- a) Explain Process Capability Analysis and its important measures and indices.
 - b) Discuss Hypothesis Testing and Regression Analysis in the ANALYZE phase of Six Sigma.
 - c) Explain the role of Design of Experiments (DOE) and Taguchi Method in the IMPROVE phase.
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Q.4 Solve any Two out of Three. (10 Marks)

- a) Explain Statistical Process Control and Control Charts for Variables.
 - b) Discuss Acceptance Sampling Plans for Attributes and Variables.
 - c) Explain the Seven QC Tools and their applications in quality improvement.
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Q.5 Solve any One out of Two. (10 Marks)

- a) Discuss Six Sigma implementation challenges and Critical Success Factors in implementation.
- b) Explain Design for Six Sigma (DFSS) and discuss Six Sigma Team Management and applications of Lean Six Sigma.