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| Enroll No |
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K.E.Society's
Rajarambapu Institute of Technology, Rajaramnagar
(An Empowered Autonomous Institute, affiliated to SUK)
Mid-Sem Exam (MSE) (2025-26)
Final Year B.Tech. Electrical

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| Q.P. Code |
| M58 |

Course Code: EE4154

Course Name: Power Quality and Harmonics

Day & Date: Friday, 19/09/2025

Time: 3.15-5.15 pm

Max Marks- 50

- Instructions:**
- 1) All questions are compulsory.
 - 2) Figures in rounded () brackets within the question, indicate the scheme of marking for respective part of the question, whereas, figures in the first right column indicate total marks for that whole question.
 - 3) CO is the index number of the Course Outcome statement.
 - 4) The Bloom's taxonomy level (BL) for 1,2,3,4,5 and 6 is remember, understand, apply, analyze, evaluate and create respectively.
 - 5) Assume suitable data if necessary.
 - 6) Use of non-programmable calculators is allowed

| | | Marks | BT Level | COs |
|-----|--|-------|----------|-----|
| Q.1 | A List the sources of power quality problems (2). Explain any two end-user side power quality problems. | 08 | 4 | 1 |
| | B Enlist different types of waveform distortions in the power system. Compare DC offset and Notching (06 Marks). | 08 | 4 | 1 |

OR

| | | | | |
|-----|--|----|---|---|
| | B Enlist different types of waveform distortions in the power system. Compare Harmonics and Noise. (06 Marks). | | | |
| Q.2 | A Draw (4 marks) and explain (4 marks) the power quality evaluation procedure. | 08 | 4 | 1 |
| | B Illustrate the voltage sag improvement using the Ferro resonance transformer. | 09 | 3 | 1 |

OR

Explain voltage sag and interruption, also explain the sources of sags and interruptions with suitable examples.

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|-----|--|----|---|---|
| Q.3 | A Draw (4 marks) and explain (4 marks) the basic design of an expert system for power quality monitoring applications | 08 | 4 | 2 |
| | B List the power quality monitoring considerations (3 Marks) and explain the following: (03 Marks each) i) Setting monitor thresholds ii) Quantities and duration to measure | 09 | 3 | 2 |

OR

List power quality measuring equipment and explain the harmonic analyser in detail.

