

Enroll No

K.E.Society's
Rajarambapu Institute of Technology, Rajaramnagar
 (An Empowered Autonomous Institute, affiliated to SUK)
Mid-Sem Exam (MSE) (2025-26)

Q.P. Code
M59

Final Year B.Tech. Electrical Engineering

Course Code: EE4174

Course Name: PE-IV Smart Grids

Day & Date: 19/09/2025

Time: 3:15 pm – 5:15 pm

Max Marks- 50

- Instruction s:**
- 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 Explain 'Smart Grid' with its key components. (Definition and list of key components- 1 mark each; For explaining any three components- 2 marks each)	08	BT	CO
			3	1
	B Describe 'Microgrid Technology' in detail. (Definition, diagram, need, structure, components, working, benefits, challenges)	08	BT	CO
			3	1
	OR			
	Compare between Microgrid and Smart Grid			
Q.2	A Explain the layered architecture of Smart Grid. (Diagram-2Marks, Explain each layer- 6 Marks)	08	BT	CO
			3	2
	B Discuss the advantages and limitations of PLC as a communication technology for Smart Grid (Role of Power Line Communications-1 Mark, Advantages and Limitations-4 Marks each)	09	BT	CO
			3	2
	OR			
	Discuss the role of SCADA in Smart Grid monitoring and control			
Q.3	A Illustrate the benefits of two way digital communication in Smart Grid (1 mark for each valid detailed benefit)	08	BT	CO
			4	3
	B Justify the importance of communication technology in Smart Grid (1 mark for each valid detailed justification)	09	BT	CO
			4	3

OR

Justify the optimum placement of PMU (Phasor Measurement Unit) in Smart Grid

