

Seat No.:	Q. Paper Code: FTC-A-004			SET	A	
	Fabtech Technical Campus, College of Engineering & Research, Sangola					
	(An Autonomous Institute)					
	Electrical Engineering					
	Academic Year: -2025-26, Semester-I					
Modern Power System Analysis (25PEE11171)						
Regular End Semester Examination Winter 2025-26 [Dec./Jan]						
Class:	F. Y. M. Tech.	Day & Date:	Thursday, 01/01/2026			
Duration:	03 Hrs.	Max. Marks:	60 Marks			
Time:	11.00 AM TO 02.00 PM					
Instructions:						
1) All Questions are compulsory. 2) Figures to the right indicate full marks. 3) Draw neat diagram wherever necessary. 4) Make suitable assumptions if necessary and state it clearly. 5) Use of non-programmable calculator is allowed.						
Q. No.	Questions			Marks	CO	BL
Q. 1	Attempt any two of the following			12		
1	Compare the Newton-Raphson methods used in load flow analysis.			6	1	L4
2	What is the significance of sparsity techniques in load flow analysis?			6	1	L2
3	Explain how Qmaxviolations are handled in the constant matrix approach during load flow analysis.			6	1	L3
Q. 2	Attempt any two of the following			12		
1	How do simultaneous faults differ from single faults in terms of analysis and system impact?			6	2	L4
2	Discuss the causes, types (single, double, and three open conductor faults), and their effects on power system operation and protection			6	2	L2
3	Explain the generalized method of fault analysis			6	2	L3
Q. 3	Attempt any two of the following			12		
1	Explain the concept of a security state diagram in power system security analysis.			6	3	L2
2	What is contingency analysis in power systems?			6	3	L4
3	Define Generator Shift Distribution Factors (GSDF) and Line Outage Distribution Factors (LODF).			6	3	L2
Q. 4	Attempt any two of the following			12		

1	Differentiate between virtual measurements and pseudo measurements.	6	4	L2
2	Identify and explain the major sources of errors in power system measurements.	6	4	L4
3	Explain the Weighted Least Squares (WLS) method of state estimation	6	4	L2
Q. 5	Attempt any two of the following	12		
1	Explain the concept of voltage collapse in a power system.	6	5	L2
2	What are the typical causes of voltage collapse, and how does it affect system reliability and operation?.	6	5	L4
3	How does the concept of continuation power flow (CPF) help in tracing these solutions and predicting voltage collapse?	6	5	L4