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PRESIDENCY UNIVERSITY

BENGALURU

Mid - Term Examinations - MARCH 2026

Date: 10-03-2026

Time: 09:30am - 11:00am

School: SOE	Program: Electrical and Electronics Engineering		
Course Code: EEE3009	Course Name: AI Applications for Electrical Engineering		
Semester: VI	Max Marks: 50	Weightage: 25%	

CO - Levels	C01	C02	C03	C04	C05
Marks					

Instructions:

- (i) Read all questions carefully and answer accordingly.
- (ii) Do not write anything on the question paper other than roll number.

Part A

Answer ALL the Questions. Each question carries 2marks.

5Q x 2M=10M

1	Summarize the role of Artificial Intelligence in modern electrical power systems with suitable examples.	2 Marks	L2	C01
2	Describe how Machine Learning is used in load forecasting for power utilities.	2 Marks	L2	C01
3	Explain the working principle of an AI-based expert system used for electrical fault diagnosis.	2 Marks	L2	C01
4	Explain the structure and operation of a Radial Basis Function (RBF) Network.	2 Marks	L2	C02
5	Explain the Least Mean Square (LMS) algorithm used in neural networks.	2 Marks	L2	C02

Part B

Answer the Questions.

Total Marks 40M

6.	a.	A highway fast-charging station causes voltage dips and transformer overloading. Identify a technical solution to balance fast charging demand and grid stability.	10 Marks	L4	C01
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Or

7.	a.	The pharmaceutical industry requires high precision and zero-defect production. Analyze an automated quality inspection system and its effectiveness compared to manual inspection.	10 Marks	L4	C01
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8.	a.	A cement plant experiences unexpected motor and conveyor breakdowns. Prepare a predictive maintenance system using automation and data analytics to reduce downtime.	10 Marks	L3	C01
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Or

9.	a.	A thermal power plant relies on manual monitoring, causing delayed fault detection. Select a suitable SCADA-AI based automation system and its impact on plant safety and efficiency.	10 Marks	L3	C01
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10.	a.	A substation requires short-term load forecasting with high accuracy. Analyze Radial Basis Function Network (RBFN) over an MLP for this task, considering training speed and accuracy for load forecasting.	10 Marks	L4	C02
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Or

11.	a.	An electrical machine experiences intermittent faults that are difficult to model. Examine the use of a Functional Link Neural Network (FLNN) for fault detection compared to multilayer networks.	10 Marks	L4	C02
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12.	a.	A renewable energy forecasting system must adapt quickly to changing weather patterns. Distinguish the various neural network learning methods (supervised, unsupervised, adaptive) for renewable energy forecasting.	10 Marks	L4	C02
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Or

13.	a.	An electrical measurement system is affected by noise. Analyze the effectiveness of the LMS algorithm in adaptive noise cancellation compared to fixed digital filters.	10 Marks	L5	C02
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