Gandhi Institute of Engineering and Technology University, Odisha, Gunupur
(GIET University)
B. Tech (Eighth Semester - Regular) Examinations, April – 2025
21BELOE48011/21BEEOE48011 – AI Application to Electrical Engineering
(EE/EEE)

Time: 3 hrs   Maximum: 70 Marks

(The figures in the right hand margin indicate marks)

PART – A   (2 x 5 = 10 Marks)

Q.1. Answer *ALL* questions

		CO #	Blooms Level
a.	Define Artificial Intelligence (AI) and explain its significance in electrical engineering.	CO1	K1
b.	How is reinforcement learning applied in electrical system optimization?	CO2	K2
c.	Name two no-code platforms used for predictive maintenance.	CO3	K1
d.	Which model is suitable for predicting failures in motors and transformers?	CO3	K3
e.	Mention one advantage of automated power quality monitoring.	CO4	K1

PART – B   (15 x 4 = 60 Marks)

Answer *all* the questions

		Marks	CO #	Blooms Level
2. a.	Compare and contrast AI with traditional computing in the context of electrical engineering.	8	CO1	K1
b.	Discuss in detail the role of AI in fault prediction and load forecasting in power systems.	7	CO1	K3
	(OR)			
c.	Describe how AI is used for predictive maintenance in electrical machines with real-world examples.	8	CO1	K4
d.	Analyze the role of AI in smart grids and its impact on energy optimization.	7	CO1	K3
3.a.	Explain how AI enhances load forecasting and demand management in modern power systems.	8	CO2	K5
b.	Describe the concept of predictive maintenance in substations using AI. What types of data are used?	7	CO2	K4
	(OR)			
c.	Discuss the use of reinforcement learning in the optimization of electrical systems. Provide an application example.	8	CO2	K4
d.	Explain how AI is used in solar power prediction and optimization.	7	CO2	K5
4.a.	Describe the structure and functioning of neural networks and their application in deep learning.	8	CO3	K2
b.	Explain how Google AutoML and Teachable Machine can be used in electrical engineering applications.	7	CO3	K3
	(OR)			
c.	Explore how H2O.ai, DataRobot, and Lobe.ai can be applied for predictive maintenance.	8	CO3	K4
d.	Explain AI and IoT integration for smart grids and predictive fault analysis.	7	CO3	K3
5.a.	Describe how circuit fault diagnosis can be implemented using no-code tools.	8	CO4	K5
b.	Explain how intelligent systems help balance electrical load across networks.	7	CO4	K4
	(OR)			
c.	Describe how equipment health is monitored using machine learning techniques.	8	CO4	K2
d.	How can technology help predict motor and transformer failures?	7	CO4	K4

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