Ref. No.: Ex/PG/POW/PE/T/113C/2025

M.E. Power Engineering First Year First Semester Examination – 2025

Subject: Artificial Intelligence and Machine Learning in Power Systems

Full Marks: 100 **Time: 3 Hrs**

Question No.		Marks
	CO1 (Marks - 50) Answer any *Two*	
1	a. How Knowledge differs from intelligence? What do you understand by the term Artificial Intelligence (AI)? b. Classify AI on the basis of the functionalities of AI. Compare ANI, AGI and ASI, in context of AI. c. Briefly discuss the various components of intelligence.	5+5 2+6 7
2	a. Compare Artificial Intelligence (AI), Machine Learning (ML), and Deep Learning (DL). b. What are intelligent agents in AI? Briefly discuss the properties of Agents. c. What is Turing Test? What is the Criticism to the Turing Test?	9 2+8 2+4
3	a. How machine learning differs from Artificial intelligence? b. Discuss the various phases of Machine Learning. c. Compare the concept of Classification, Regression and Clustering? List the algorithms in respective categories.	5 10 10
	CO2 (Marks – 30) Answer any *Two*	
4	a. What is Reinforcement Learning? List the components involved in it b. Briefly discuss the various algorithms of Reinforcement Learning.	2+3 10
5	a. Compare between Supervised and Un-Supervised Learning. List the Steps Involved in Supervised Learning. b. Compare between structured and unstructured data	5+5 5
6	a. What is regression? Define linear regression. b. Explain about support vector	2+3 10
	CO3 (Marks - 10) Answer any *One*	
7	List the various domains of power system where Artificial Intelligence may be applied. Classify machine learning based forecasting methods applied to power system	10
8	Write down the pseudo-code of Gradient boosting machine.	10
	CO4 (Marks - 10) Answer any *One*	
9	Briefly describe the principle of LSTM algorithm.	10
10	Illustrate the application of competitive ensemble learning in wind speed forecasting.	10