Reg. No.												

Question Paper Code	12372

B.E. / B.Tech - DEGREE EXAMINATIONS, NOV / DEC 2023

Fourth Semester

Artificial Intelligence and Data Science

20AIPC403 - ADVANCED MACHINE LEARNING

(Regulations 2020)

Duration: 3 Hours Max. Marks: 100

PART - A (10 × 2 = 20 Marks)

Answer ALL Questions

		Marks, K-Level, CO
1.	What is directed graphical models in machine learning?	*2,K1,CO1*
2.	List the different types of graphical models.	*2,K1,CO1*
3.	What is the inference of a graphical model?	*2,K2,CO2*
4.	What is Expectation Maximization?	*2,K2,CO2*
5.	What do you mean by neural network?	*2,K1,CO3*
6.	Define sampling.	*2,K1,CO3*
7.	How do you calculate uncertainty in machine learning?	*2,K1,CO4*
8.	What are the three sources of uncertainty in machine learning?	*2,K2,CO4*
9.	Discuss the two main features of the Gaussian process.	*2,K2,CO5*
10.	Can LSTM be used for multivariate forecasting?	*2,K2,CO5*

PART - B (5 × 13 = 65 Marks)

Answer ALL Questions

11.	a)	What is the conditional independence of undirected graph?	*13,K2,CO1*
		OR	
	b)	Explain in detail on ising and potts model with neat diagram.	*13,K2,CO1*
12.	a)	Explain the use of Variable elimination algorithms in graphical model inference.	*13,K3,CO2*
		OR	
	b)	What MLE algorithm use for learning partially observed directed graphical models?	*13,K3,CO2*
13.	a)	Explain MCMC sampling with suitable examples.	*13,K3,CO3*
		OR	
	b)	Explain in detail about GAN with suitable examples.	*13,K3,CO3*

14. a) Explain in briefly about Uncertainties in Parameters Estimated with Neural Networks. *13,K4,CO5*

OR

b) Explain the various models for uncertainty quantification. *13,K4,CO5*

15. a) Explain Encoder-Decoder Model for Multivariate Time Series Forecasting. *13,K4,CO6*

OR

b) Describe the Gaussian copula approach. *13,K4,CO6*

PART - C (1 × 15 = 15 Marks)

16. a) Describe briefly about Masked Autoregressive Flow for Density Estimation. *15,K2,CO4*

OR

b) Explain Neural models for density estimation. *15,K3,CO4*