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Reg. No.													

Question Paper Code	12073

B.E. / B.Tech. - DEGREE EXAMINATIONS, APRIL / MAY 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.	Define Graphical model and its types.	2,K1,CO1
2.	Describe the impact of clique.	2,K2,CO1
3.	What is Expectation Maximization?	2,K1,CO2
4.	What do you mean by belief propagation?	2,K1,CO2
5.	State the neural network with neat diagram.	2,K1,CO3
6.	Draw the functional diagram for variation auto encoder.	2,K2,CO3
7.	What do you mean by autoregressive model in density estimator?	2,K1,CO4
8.	What are the applications of Tensor Flow Distribution?	2,K1,CO4
9.	List the advantages of Bayesian Neural Network.	2,K1,CO5
10.	What is Epistemic uncertainty?	2,K1,CO5

PART - B (5 × 13 = 65 Marks)

Answer ALL Questions

11.	a)	Discuss about undirected graphical model and its terminologies.	13,K2,CO1
		OR	
	b)	Explain in detail about the ising and potts model with neat diagram.	13,K2,CO1
12.	a)	Explain the use of variable elimination algorithms in graphical model inference.	13,K2,CO2
		OR	
	b)	How can the junction tree algorithm be applied on chain structured graphs? Explain in detail.	13,K2,CO2
13.	a)	Interpret the MCMC sampling with suitable examples.	13,K2,CO3
		OR	
	b)	Describe in detail about GAN with suitable examples.	13,K2,CO3

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create

14. a) Discuss in detail about the Masked Autoencoder for Distribution Estimation. *13,K2,CO4*

OR

b) Explain in detail about the TensorFlow Distributions. *13,K2,CO4*

15. a) Summarize the Uncertainties in Parameters Estimated with Neural Networks. *13,K2,CO5*

OR

b) Explain briefly about Meta-Learning, Counterfactual reasoning, Causality. *13,K2,CO5*

PART - C (1 × 15 = 15 Marks)

16. a) Illustrate the DeepAR methodology for probabilistic forecasting. *15,K2,CO6*

OR

b) Analyze the Encoder-Decoder Model for Multivariate Time Series Forecasting. *15,K2,CO6*