PVP 20

Code: 20AM3602, 20DS3603

III B.Tech - II Semester – Regular Examinations - APRIL 2025

DEEP LEARNING

(Common for AIML & DS)

Duration: 3 hours Max. Marks: 70

Note: 1. This paper contains questions from 5 units of Syllabus. Each unit carries 14 marks and have an internal choice of Questions.
2. All parts of Question must be answered in one place.

BL – Blooms Level CO – Course Outcome

			BL	CO	Max. Marks
		UNIT-I			
1	a)	Explain sigmoid, tanh, relu and softmax activation functions.	L2	CO1	7 M
	b)	What is regularization in Deep Learning? Explain the Dropout technique and its importance.	L2	CO1	7 M
		OR			
2	a)	Explain the differences between binary cross-entropy, categorical cross-entropy and sparse categorical cross-entropy.	L2	CO1	7 M
	b)	Differentiate between batch normalization and layer normalization.	L2	CO1	7 M
		UNIT-II			
3	a)	Illustrate key components of a Convolutional Neural Networks (CNNs) with an example.	L3	CO2	7 M

	b)	Explain how normalization improves the performance of convolutional neural networks with an example.	L2	CO2	7 M
OR					
4	a)	Illustrate hyper-parameter tuning in convolutional neural networks.	L3	CO2	7 M
	b)	Demonstrate how stride affects the feature extraction in convolutional neural networks with an example.	L3	CO2	7 M
UNIT-III					
5	a)	Explain the AlexNet architecture with an example.	L2	CO2	7 M
	b)	Analyze the merits and demerits of the ResNet architecture.	L4	CO4	7 M
OR					
6	a)	Explain the Inception architecture with an example.	L2	CO2	7 M
	b)	Analyze the merits and demerits of the VGGNet architecture.	L4	CO4	7 M
UNIT-IV					
7	a)	Demonstrate the trade-offs of using a pre-trained model instead of training a model from scratch.	L3	CO3	7 M
	b)	Illustrate how a Bidirectional Recurrent Neural Networks improves context understanding in natural language processing tasks with an example.	L3	CO3	7 M

OR					
8	a)	Explain Gated Recurrent Unit (GRU) architecture.	L2	CO3	7 M
	b)	Demonstrate the role of decoder in encoder-decoder architecture and the limitations of encoder-decoder architecture.	L3	CO3	7 M
UNIT-V					
9	a)	Compare and contrast the architectures of the generator and discriminator in Generative Adversarial Networks (GANs).	L4	CO4	7 M
	b)	Demonstrate the key challenges in training Generative Adversarial Networks (GANs).	L3	CO3	7 M
OR					
10	a)	Discuss the applications of Generative Adversarial Networks (GANs).	L2	CO1	7 M
	b)	Compare Deep Convolutional GANs (DCGANs) and Cycle-Consistent GANs (CycleGANs).	L4	CO4	7 M