CBCS SCHEME

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BCA701

Seventh Semester B.E./B.Tech. Degree Examination, Dec.2025/Jan.2026
Deep Learning

Time: 3 hrs. Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks , L: Bloom's level , C: Course outcomes.

		Module – 1	M	L	C
Q.1	a.	Define Neural Network. Explain briefly the benefits of neural networks.	10	L1	CO1
	b.	Explain the role of weights, bias and activation functions in a neuron model.	10	L2	CO1
		OR			
Q.2	a.	State and explain Perceptron Convergence Theorem.	10	L2	CO1
	b.	Discuss relation between the perceptron and bayes classifier for a gaussian environment.	10	L2	CO1
		Module – 2			
Q.3	a.	What is Multi Layer Perceptron (MLP) and explain how does it differ from a single layer perceptron.	10	L2	CO2
	b.	Explain Back propogation algorithm and its importance in training multilayer perceptrons.	10	L2	CO2
		OR			
Q.4	a.	Explain how a multilayer perceptron trained by Back-propogation can solve the XOR problem, where as a single layer perceptron cannot.	10	L2	CO2
	b.	Discuss Heuristics for making the back-propagation algorithm perform better.	10	L2	CO2
		Module – 3			
Q.5	a.	What is regularization in the context of deep learning? Explain L2 parameter regularization in detail.	10	L2	CO3
	b.	Discuss the following : i) Dataset Augmentation ii) Semi Supervised Learning.	10	L2	CO3
		OR			
Q.6	a.	Write a short note on : i) Ill conditioning ii) Plateaus, saddle points and other flat regions.	10	L2	CO3
	b.	Elaborate the challenges local minima, long term dependencies and Cliffs and exploding gradients involved in optimization for training deep model.	10	L2	CO3

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		Module – 4			
Q.7	**a.**	Explain convolution neural network in detail.	**10**	**L2**	**CO4**
	b.	Discuss pooling in CNN.	**10**	**L2**	**CO4**
		OR			
Q.8	**a.**	Describe the variants of the basic convolution function in brief.	**10**	**L2**	**CO4**
	b.	With the context of convolutional networks, Explain structured output and data types.	**10**	**L2**	**CO4**
		Module – 5			
Q.9	**a.**	Discuss Recurrent Neural Networks.	**10**	**L6**	**CO5**
	b.	Explain the idea of unfolding computational graph across a deep network structure.	**10**	**L2**	**CO5**
		OR			
Q.10	**a.**	Explain the following: i) Bidirectional RNNs ii) Encoder-Decoder sequence – to – sequence architectures.	**10**	**L2**	**CO5**
	b.	Explain the modes long short-term memory and network based on the gated recurrent unit.	**10**	**L2**	**CO5**

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