R22 Regulation *Subject code:4E6GB*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A+' Grade)

B.Tech VI Semester Regular/Supplementary Examinations, April 2026

DEEP LEARNING

(CSE(AIML))

Maximum Marks: 60 Date:18.04.2026 Duration: 3 hours

Note:
1. **This question paper contains two parts A and B.**
2. **Part A is compulsory which carries 10 marks. Answer all questions in Part A.**
3. **Part B consists of 5 Units. Answer any one full question from each unit.**
4. **Each question carries 10 marks and may have a, b, c, d as sub questions.**

Part-A

All the following questions carry equal marks (10X1M=10 Marks)		Marks	CO	Bloom Tx
1.a)	What are hyperparameters?	1M	CO1	L1
b)	What is Stochastic Gradient Descent?	1M	CO1	L1
c)	What is parameter sharing?	1M	CO2	L1
d)	Give two examples of adaptive learning rate algorithms.	1M	CO2	L1
e)	What is stride in convolution?	1M	CO3	L1
f)	Define CNN.	1M	CO3	L1
g)	Define unfolding.	1M	CO4	L1
h)	Define Encoder-Decoder architecture.	1M	CO4	L1
i)	Define precision in machine learning.	1M	CO5	L1
j)	Give two applications of deep learning in NLP.	1M	CO5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL
2	a) Describe other differentiation algorithms used in deep learning. b) Discuss the bias–variance tradeoff in machine learning.	5M 5M	CO1 CO1	L2 L2
	OR			
3	a) Describe overfitting and underfitting with suitable examples. b) Discuss architecture design considerations in deep learning models.	5M 5M	COI COI	L2 L2
4	a) Explain the concept of dataset augmentation and its importance in deep learning. b) Explain tangent distance and tangent propagation in deep learning.	5M 5M	COII COII	L2 L2
	OR			
5	a) Explain the early stopping technique used in training deep networks. b) Explain the difference between learning and pure optimization.	5M 5M	COII COII	L2 L2
6	a) Discuss the concept of structured outputs in convolutional networks. b) Describe efficient convolution algorithms used in deep learning.	5M 5M	COIII COIII	L2 L2

	OR			
7	a) Describe convolution and pooling as an infinitely strong prior. b) Explain the architecture of a convolutional neural network with diagram.	5M 5M	COIII COIII	L2 L2
8	a) Explain the concept of unfolding computational graphs in recurrent neural networks. b) Describe the Recursive Neural Networks and their applications.	5M 5M	COIV COIV	L2 L2
	OR			
9	a) Discuss the Encoder-Decoder sequence-to-sequence architecture. b) Compare RNN, LSTM, and GRU.	5M 5M	COIV COIV	L2 L2
10	a) Explain various applications of deep learning in different domains. b) Explain the multi-digit number recognition problem with an example.	5M 5M	COV COV	L2 L2
	OR			
11	a) Explain how to determine whether to gather more data for improving model performance. b) Discuss the steps involved in building a practical deep learning system.	5M 5M	COV COV	L2 L2

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