R20 Regulation *Subject code: 3E6EL*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech VI Semester Supplementary Examinations, April 2026

DEEP LEARNING

(CSE)

Maximum Marks: 70 Date: 23.04.2026 Duration: 3 hours

Note: **1.This question paper contains two parts A and B.**
2. Part A is compulsory which carries 20 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 (10X2M=20 Marks)		Marks	CO	BTL
1	Differentiate between AI, ML and DL.	2M	1	L1
2	List the advantages of Batch normalization.	2M	1	L1
3	What is random weight initialization?	2M	2	L1
4	Give the solutions to address vanishing/exploding gradient problem.	2M	2	L1
5	Draw the computational graph for $y=\mathcal{E}(xw+b)$	2M	3	L1
6	What is n gram?	2M	3	L1
7	What is Sparse Auto encoder?	2M	4	L1
8	Write about transfer learning.	2M	4	L1
9	Define Density estimation.	2M	5	L1
10	What is energy function?	2M	5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL
11	a) Illustrate learning XOR with an example. b) Explain Gradient Based Learning.	5M 5M	1	L2
	OR			
12	a) Explain the Architecture design of neural networks. b) What are the salient features of DL that addresses the classical ML limitations.	5M 5M	1	L2
13	Discuss how learning differs from pure optimization.	10M	2	L2
	OR			
14	a) What are CNNs? Explain convolution operation. b) Write efficient convolution algorithms.	7M 3M	2	L2
15	a) Explain RNN architectures. b) Explain Gated Recurrent Unit.	5M 5M	3	L2
	OR			
16	Explain the following deep learning applications: a) Speech recognition b) Recommender Systems	 5M 5M	3	L2

17	a) Explain stochastic encoders and decoders. b) Explain Denoising Autoencoders.	5M 5M	4	L2
	OR			
18	Explain semi supervised disentangling of casual factors.	10M	4	L2
19	a) Explain learning about dependencies. b) Explain Inference and approximate inference.	5M 5M	5	L2
	OR			
20	Explain the deep learning approach to structured probabilistic models.	10M	5	L2