R20 Regulation *Subject code: 3E7GA*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech VII Semester Regular Examinations, November2023

DEEP LEARNING

(CSE(AI&ML))

Maximum Marks: 70 Date:11.12.2023 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 which carries 10M.
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)		Bloom Tx
1	What is Deep learning?	L1
2	Why do we use dropout in deep learning?	L1
3	State the advantage of stochastic gradient descent	L1
4	What is Pooling?	L1
5	State the two major advantageous of unfolding process	L1
6	What is surrogate loss function?	L1
7	What is the difference between overcomplete and undercomplete autoencoder?	L1
8	Differentiate supervised and unsupervised learning?	L1
9	What is structured probabilistic model?	L1
10	What is Restricted Boltzmann Machine (RBM)?	L1

Part-B

Answer All the following questions. (5X10M=50Marks)		
11	A. What is regularization? How does regularization help in reducing overfitting. [7] B. Write the early stopping meta-algorithm for determining the best amount of time to train. [3]	L1 L2
	OR	
12	A. Why convergence is not guaranteed for back propagation algorithm. [5] B. Compare and contrast fed forward and fed backward networks. [5]	L1 L3
13	How learning differs from pure optimization. [10]	L2
	OR	
14	A. Illustrate the operation of pooling layer in CNN with simple example. [5] B. Explain the AdaGrad algorithm. [5]	L2 L2
15	A. Describe the working of a LSTM recurring unit. How does LSTM solve the problem of vanishing and exploding gradients? [5]	L2

	B. What are Bidirectional RNNs? What advantage do they hold over Recurrent Neural Networks (RNNs). [5]	L2
	OR	
16	A. Explain the role of artificial intelligence in natural language processing. [5] B. Discuss the application of deep learning in computer vision. [5]	L2 L2
17	A. Explain the concept of auto encoder and its need. [5] B. Discuss the application of deep learning in speech recognition. [5]	L3 L2
	OR	
18	A. Auto encoders use unsupervised learning approach. Justify the statement. [6] B. When and why does unsupervised pretraining work? [4]	L2 L2
19	A. Discuss the challenges of unstructured modelling. [5] B. Explain the following [5] i)Density estimation ii)Denoising iii)Missing value imputation iv)Sampling	L2 L2
	OR	
20	A. Explain how graphical models are used for deep learning with suitable example. [5] B. What are structured probabilistic models in the context of deep learning, and how do they differ from traditional neural networks? [5]	L3 L2