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MINOR
(SEM VI) THEORY EXAMINATION 2024-25
DEEP LEARNING AND NEURAL NETWORK

TIME: 3 HRS**M.MARKS: 100****Note:** Attempt all Sections. In case of any missing data; choose suitably.**SECTION A****1. Attempt all questions in brief.****2 x 10 = 20**

Q No.	Question	CO	Level
a.	Define an activation function.	1	K1
b.	What is the difference between input, hidden, and output layers?	1	K1
c.	Define epoch and batch size in neural network training.	2	K2
d.	How do you decide the number of hidden layers in a neural network?	2	K1
e.	Define pooling in CNNs.	3	K2
f.	How does a CNN differ from a traditional ANN?	3	K2
g.	Give one real-world application of RNNs.	4	K1
h.	What kind of data is best suited for RNNs?	4	K2
i.	Write a single line of code to import Keras.	5	K2
j.	What is model compilation in Keras?	5	K1

SECTION B**2. Attempt any three of the following:****10 x 3 = 30**

Q No.	Question	CO	Level
a.	Explain the basic structure of an artificial neural network (ANN).	1	K2
b.	How do you determine the number of hidden layers and neurons in a neural network?	2	K3
c.	Describe the role of convolution, pooling, and fully connected layers in CNNs.	3	K3
d.	What is Long Short-Term Memory (LSTM)? How does it solve the limitations of RNNs?	4	K2
e.	What are TensorFlow and Keras? How are they used in building neural networks?	5	K3

SECTION C**3. Attempt any one part of the following:****10 x 1 = 10**

Q No.	Question	CO	Level
a.	What are activation functions? Explain their role in neural networks.	1	K3
b.	Differentiate between supervised and unsupervised learning in ANN with an example.	1	K3

4. Attempt any one part of the following:**10 x 1 = 10**

Q No.	Question	CO	Level
a.	Explain over fitting and under fitting in the context of training neural networks.	2	K2
b.	Explain the vanishing gradient problem in RNNs.	2	K2



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5. Attempt any *one* part of the following:

10 x 1 = 10

Q No.	Question	CO	Level
a.	Explain how CNNs are used in image classification tasks.	3	K3
b.	Compare CNNs and traditional ANNs in the context of image recognition.	3	K3

6. Attempt any *one* part of the following:

10 x 1 = 10

Q No.	Question	CO	Level
a.	How are RNNs applied in time-series prediction?	4	K2
b.	Explain real-world applications of RNNs in natural language processing.	4	K2

7. Attempt any *one* part of the following:

10 x 1 = 10

Q No.	Question	CO	Level
a.	Explain the steps involved in training, evaluating, and deploying a model using TensorFlow.	5	K4
b.	How do you use TensorBoard for visualizing training performance?	5	K4

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