BTS–VI(R)–04–22–0317 Reg. No. | | | | | | | | |

B

B.Tech. Degree VI Semester Regular Examination April 2022

CS 19-202-0606 (IE) NEURAL NETWORKS AND DEEP LEARNING

(2019 *Scheme*)

Time: 3 Hours Maximum Marks: 60

Course Outcome

On successful completion of the course, the students will be able to:

CO1: Identify the basic concepts of deep learning.
CO2: Analyse the deep learning architectures which are appropriate for various types of learning tasks in different domains.
CO3: Illustrate use of Tensor Flow libraries to implement deep neural networks.
CO4: Apply Tensor Flow in NLP applications.

Bloom's Taxonomy Levels (BL): L1 – Remember, L2 – Understand, L3 – Apply, L4 –Analyze, L5 – Evaluate, L6 – Create

PO – Programme Outcome

PART A

(Answer *ALL* questions)

		(8 × 3 = 24)	Marks	BL	CO	PO
I.	(a)	List and explain the various activation functions using in Neural networks	3	L1, L2	1	1,3
	(b)	Explain the role of gradient descent algorithm in neural network learning.	3	L2	1	1,3
	(c)	Analyse the effect of filter size and stride value in maximum pooling and minimum pooling with an example.	3	L4	2	1,2
	(d)	Which are the four different types of topology associated with RNN? Which RNN topology will you choose for a sentiment analysis task? Give reasons.	3	L4	2	1,2
	(e)	Write simple code to create rank2 and rank3 tensors and to print them. Draw the shape of the tensors created in the code.	3	L2	3	3,5
	(f)	Differentiate tf.keras.optimizers and tf.keras.losses of tensor flow model compilation.	3	L5	3	3,5
	(g)	Can word embedding be used in Tensor Flow? Name two models used in word embedding?	3	L4	4	3,5
	(h)	Write tensor flow code to do basic text preprocessing and tokenization.	3	L3	4	3,5

PART B

(4 × 12 = 48)

II.	Draw the architecture of multi layer feed forward neural network and explain its working. List two tasks that cannot be solved by single layer perceptron. Give reasons.	12	L2	1	1,3
	OR				
III.	Discuss in detail back propagation algorithm and back propagation learning. How will you calculate error during back propagation?	12	L2	1	1,3

(P.T.O)

IV.	Discuss in detail Convolution and Pooling phase in CNN. Apply maximum pooling, minimum pooling and average pooling to the given input data for a stride value of 2 and filter size of 2 × 2.	12	L3	2	1,2

4	9	2	5
5	6	2	4
2	4	5	4
5	6	8	4

OR

V.	Compare Sequence learning in RNN and LSTM along with their architectural difference.	12	L3	2	1,2
VI.	Discuss the high level steps for classifying images by a deep learning model in tensor flow.	12	L4	3	3,5

OR

VII.	Why LSTM is better for sequence prediction? Explain each type of sequence prediction in detail.	12	L4	3	3,5
VIII.	Why TF-IDF is important? Show how to calculate TF-IDF for a given sentence.	12	L5	4	3,5

OR

IX.	What is the advantage of representing a textual information as word embedding? Explain the working and architecture of skip-gram model.	12	L2, L3	4	3,5

Bloom's Taxonomy Levels

L1 = 6.25%, L2 = 37. 5%, L3 = 25%, L4 = 31.25%, L5 = 12.5%, L6 = 0%

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