Register Number:……..

KUMARAGURU
college of technology
character is life

B.E/B.TECH DEGREE EXAMINATIONS: DEC 2022

(Regulation 2018)

Fourth Semester

ARTIFICIAL INTELLIGENCE AND DATA SCIENCE

U18AII4202: Neural Networks and Deep Learning

COURSE OUTCOMES

CO1: Understand different methodologies to create application using deep nets

CO2: Design the test procedures to assess the efficacy of the developed model.

CO3: Identify and apply appropriate deep learning models for analyzing the data for a variety of problems.

CO4: Implement different deep learning algorithms

Time: Three Hours **Maximum Marks: 100**

Answer all the Questions:-

PART A (10 x 2 = 20 Marks)

(Answer not more than 40 words)

1.	Analyze that deep network is better than a shallow one.	CO1	[K_4]
2.	Tell whether large-scale network implementation easier with CNN than with other neural networks?	CO1	[K_1]
3.	What are the issues faced while training in Recurrent Networks?	CO2	[K_1]
4.	List some of the famous applications of LSTM.	CO2	[K_1]
5.	Identify ReLU function be used in output layer.	CO2	[K_3]
6.	What are the width and depth in deep neural network?	CO3	[K_1]
7.	What is the use of Deep learning in today's age, and how is it adding data scientists?	CO3	[K_1]
8.	What do you mean by overfitting?	CO3	[K_1]
9.	Why is zero initialization not a good weight initialization process?	CO4	[K_1]
10.	What is the use of leaky ReLU function?	CO4	[K_1]

Answer any FIVE Questions:-

PART B (5 x 16 = 80 Marks)

(Answer not more than 400 words)

11.	a)	Define Alex Net. Explain with suitable diagram in terms of neural network.	8	CO1	[K_1]
	b)	Explain the various representations of neurons	8	CO1	[K_2]
12.	a)	Elaborate the local response normalization in mathematical representation.	8	CO2	[K_2]
	b)	How can you *evaluate* the predictions in an Object Detection model?	8	CO2	[K_1]
13.	a)	Summarize about Training Encoders and its implementation step.	8	CO3	[K_1]
	b)	List the applications of auto encoders and identify the advantages.	8	CO3	[K_1]
14.	a)	Does the patient have cancer, or not? A patient takes a lab test and the result comes back positive. The test returns a correct positive result in only 98% of the cases in which the disease is actually present, and a correct negative result in only 97% of the cases in which the disease is not present. Furthermore, 0.008 of the entire population have this cancer. (i)Assess the Bayesian belief network. (ii) Judge the Importance of Bayesian network and how it is used to infer values of target variable?	8	CO2	[K_3]
	b)	Examine activation function and list few activation functions with description.	8	CO2	[K_4]
15.	a)	Explain what are the various metrics used to evaluate the Backpropagation algorithm	8	CO4	[K_2]
	b)	Examine the Backpropagation rule related to Intuitions	8	CO4	[K_4]
16.	a)	Outline the CNN algorithms (ResNet-18 and ResNet-50) with respect to Gemstone classification	8	CO3	[K_1]
	b)	Discuss the difference and tradeoff between bias and variance. How these factors play a role in machine learning models.	8	CO3	[K_2]

****