QPC: RA20BTECH881 AY 20 Reg. No | | | | | | | | | | |

GIET UNIVERSITY, GUNUPUR – 765022

B. Tech (Eight Semester – Regular) Examinations, April– 2023

BPECS7031 – Deep Learning

(CSE & CST)

Time: 3 hrs Maximum: 70 Marks

The figures in the right hand margin indicate marks.

PART – A: (Multiple Choice Questions) **(1 x 10 = 10 Marks)**

Q.1. Answer ***ALL*** questions	[CO#]	[PO#]
a. What is a Deep Neural Network (DNN)?	CO1	PO1
(i) A neural network that has only one hidden layer (ii) A neural network that has multiple hidden layers (iii) A neural network that is used for image classification. (iv) A neural network that is trained with backpropagation.		
b. Which of the following is a not a platform for deep learning	CO2	PO2
(i) Tensorflow (ii) Keras (iii) Pytorch (iv) MATLAB		
c. Perceptron adds up all the weighted inputs it receives, and if it exceeds a certain value, it outputs a 1, otherwise it just outputs a 0.	CO1	PO1
(i) True (ii) False (iii) Sometimes – it can also output intermediate values as well (iv) Can't say		
d. What is a Deep Feed Forward Network?	CO4	PO1
(v) A neural network that has feedback connections (vi) A neural network that has only one hidden layer (vii) A neural network that has multiple hidden layers (viii) A neural network that is used for natural language processing		
e. What is the XOR problem?	CO4	PO1
(i) A problem in which a neural network is trained to predict the output of a logical XOR operation (ii) A problem in which a neural network is trained to classify images (iii) A problem in which a neural network is trained to generate text (iv) A problem in which a neural network is trained to recognize speech		
f. What is ReLU?	CO3	PO1
(i) An activation function that returns the input value if it is positive, and zero otherwise (ii) An activation function that returns the input value if it is negative, and zero otherwise (iii) An activation function that returns the input value squared (iv) An activation function that returns the input value cubed		
g. What is an error function?	CO1	PO1
(i) A function that measures the difference between the predicted output and the actual output of a neural network (ii) A function that measures the gradient of a neural network (iii) A function that measures the number of neurons in a neural network (iv) A function that measures the computational complexity of a neural network		
h. What is Adam?	CO1	PO1
(i) An optimization method for neural networks that uses adaptive learning rates (ii) An activation function that returns the input value if it is positive, and zero otherwise (iii) A regularization method for neural networks that randomly drops out neurons during training (iv) An architecture design technique for neural networks that uses a greedy layer-wise training approach		
i. CNN is mostly used when there is an ?	CO3	PO2
(i) Structured data (ii) Unstructured data (iii) Both A and B (iv) None of the Above		

j. What is early stopping? CO3 PO1

(i) A technique for preventing overfitting in a neural network by stopping the training process early

(ii) A technique for speeding up the training process of a neural network

(iii) A technique for increasing the capacity of a neural network

(iv) A technique for reducing the number of hidden layers in a neural network

PART – B: (Short Answer Questions) (2 x 10 = 20 Marks)

Q.2. Answer ***ALL*** questions	[CO#]	[PO#]
a. What is a simple Artificial Neuron?	CO1	PO1
b. Explain briefly about Tensor flow.	CO2	PO1
c. What is the need for Deep Learning?	CO1	PO2
d. Define Perceptron	CO1	PO1
e. Explain McCulloch – Pits Neuron.	CO2	PO2
f. Describe fully connected layers	CO1	PO1
g. Explain different frameworks available for Deep Learning.	CO2	PO2
h. Demonstrate the use of Keras in Deep Learning.	CO2	PO1
i. Define Convolutional Neural Network.	CO1	PO1
j. What is the main difference between neural network and deep neural network?	CO1	PO1

PART – C: (Long Answer Questions) (10 x 4 = 40 Marks)

Answer ***ALL*** questions	Marks	[CO#]	[PO#]
3. a. Discuss the advantages and limitations of keras as a deep learning framework	4	CO2	PO2
b. How can a simple neuron be built using Tensorflow? Provide a brief overview of the process.	6	CO2	PO1
(OR)			
c. What is the need of loss function? Explain the terms in Mean Absolute Error	5	CO2	PO1
d. How does deep learning differ from traditional machine learning techniques in terms of data representation and feature extraction?	5	CO3	PO2
4. a. Explain the concept of Gradient-based Learning, and how it is used to optimize deep neural networks?	10	CO2	PO1
(OR)			
b. Explain the concept of Gradient-based Learning.	5	CO2	PO2
c. Describe how it is used to optimize deep neural networks.	5	CO2	PO3
5. a. Demonstrate the applications of Computer Vision.	5	CO3	PO2
b. Illustrate edge detection with help of a diagram.	5	CO3	PO1
(OR)			
c. Apply Max. Pooling for the below image of 5 x 5 with the hyper parameters f= 3, s = 1			

1	3	2	1	3
2	9	1	1	5
1	3	2	3	2
8	3	5	1	0
5	6	1	2	9

5 CO2 PO1

d. For the above image apply Average pooling with the hyper parameters f = 3, s = 2	5	CO3	PO2
6. a. Describe autoencoders with help of a diagram.	5	CO4	PO2
b. What is the need of optimizers? Name few optimizers in deep learning.	5	CO4	PO2
(OR)			
c. Describe the process of classification using auto encoders.	5	CO4	PO2
d. Illustrate denoising auto encoder.	5	CO4	PO2

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