Code No: R2032422 **R20** SET -1

III B. Tech II Semester Regular Examinations, July -2023
DEEP LEARNING
(Com. To CSE(AIML), CSE(AI), AIML)

Time: 3 hours Max. Marks: 70

Answer any **FIVE** Questions **ONE** Question from **Each unit**
All Questions Carry Equal Marks
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UNIT-I

1.	a)	Compare Deep Learning with Machine Learning.	[7M]
	b)	Probability theory is a fundamental tool of many disciplines of science and engineering. Justify.	[7M]
		(OR)	
2.	a)	List and explain the four branches of Machine Learning.	[7M]
	b)	Explain in detail about K-Fold validation and Overfitting and Underfitting.	[7M]

UNIT-II

3.	a)	Explain how deep learning is incorporated into human language applications.	[7M]
	b)	Explain the architecture of Back Propagation networks and Describe Back Propagation algorithm for training.	[7M]
		(OR)	
4.	a)	Explain in detail about Artificial Neural Networks.	[7M]
	b)	Give a brief history of deep learning for Natural Language Processing.	[7M]

UNIT-III

5.	a)	Explain the deep-learning software and hardware stack.	[7M]
	b)	What are the pros and cons of running deep-learning jobs in the cloud.	[7M]
		(OR)	
6.	a)	How to use neural networks to Classifying movie reviews as positive or negative.	[7M]
	b)	How to set up the deep learning workstations? Explain with example.	[7M]

UNIT-IV

7.	a)	Write an example function for Convolution and Pooling operations and explain in detail.	[7M]
	b)	Describe neural network representation and applications of CNN suitable example.	[7M]
		(OR)	
8.	a)	Draw and explain the architecture of Recurrent Neural Networks.	[7M]
	b)	What are the features of PyTorch? Implement CNN in PyTorch	[7M]

UNIT-V

9.	a)	Explain Generative Adversial Networks-Working principle and applications.	[7M]
	b)	Discuss in detail about Autoencoders and challenges in its implementation.	[7M]
		(OR)	
10.	a)	Explain Boltzmann Machines- Working principle and applications..	[7M]
	b)	What do you mean by stacked recurrent models? Explain.	[7M]

Code No: R2032422 **R20** SET -2

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Time: 3 hours Max. Marks: 70

Answer any **FIVE** Questions **ONE** Question from **Each unit**
All Questions Carry Equal Marks
*****

UNIT-I

1.	a)	What is Deep Learning? Describe how deep learning is related to artificial intelligence and machine learning.	[7M]
	b)	List and explain the historical trends in Deep Learning.	[7M]
		(OR)	
2.	a)	Explain the Formal evaluation procedures for machine learning models	[7M]
	b)	How to create decision trees? Explain its role in construction of random forests.	[7M]

UNIT-II

3.	a)	What is Machine Vision and Biological visual system? Explain.	[7M]
	b)	How to mimic the biological neuron structure as Artificial neural networks? Explain with architecture and working principle.	[7M]
		(OR)	
4.	a)	What is a cost and activation functions? Analyze these functions.	[7M]
	b)	Describe about learning conditional statistics in gradient based learning.	[7M]

UNIT-III

5.	a)	What is multiclass classification? Explain the algorithm for classifying student grade as Poor, Satisfactory, Good, Very Good.	[7M]
	b)	List the key features of Keras? Write two options for running Keras.	[7M]
		(OR)	
6.	a)	How to use neural networks to Classifying news wires by topic.	[7M]
	b)	Explain the relationship between the network, layers, loss function, and optimizer.	[7M]

UNIT-IV

7.	a)	Draw and explain the architecture of convolution neural networks.	[7M]
	b)	Illustrate the process of building a deep neural network in PyTorch.	[7M]
		(OR)	
8.	a)	Write an example function for Multichannel convolution operation and explain in detail.	[7M]
	b)	Explain how to compute the gradient in a Recurrent Neural Network.	[7M]

UNIT-V

9.	a)	What is Deep Reinforcement Learning. Explain types of Deep Reinforcement Learning.	[7M]
	b)	Explain Restricted Boltzmann Machines and implementation challenges.	[7M]
		(OR)	
10.	a)	Explain in detail about interactive applications of Deep Learning with respect to NLP.	[7M]
	b)	Explain about Deep Belief Networks.	[7M]

Code No: R2032422 **R20** SET -3

III B. Tech II Semester Regular Examinations, July -2023
DEEP LEARNING
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Time: 3 hours Max. Marks: 70

Answer any **FIVE** Questions **ONE** Question from **Each unit**
All Questions Carry Equal Marks
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UNIT-I

1.	a)	Comparison between Artificial Intelligence, Machine Learning and Deep Learning?	[7M]
	b)	Give an overview about Decision trees, random forests, and gradient boosting machines?	[7M]
		(OR)	
2.	a)	What is Machine Learning? What are the species of Machine Learning techniques? Explain	[7M]
	b)	Explain various techniques involved in Evaluating the performance of a Machine Leaning Model?	[7M]

UNIT-II

3.	a)	Discuss about Tensorflow Playground?	[7M]
	b)	Differentiate the working of forward propagation with hot dog-detecting network?	[7M]
		(OR)	
4.	a)	Explain the working of softmax function in the classification?	[7M]
	b)	Discuss about the working of backpropagation with neat sketch?	[7M]

UNIT-III

5.	a)	What is the Anatomy of a neural network? explain building blocks of deep learning?	[7M]
	b)	Give an overview of Developing with Keras in Deep Learning?	[7M]
		(OR)	
6.	a)	What is Reuters dataset? How to pre-process and build the model on dataset?	[7M]
	b)	What is Multi-class classification? How to handle the labels and loss? and also explain the importance of Intermediate layers?	[7M]

UNIT-IV

7.	a)	Explain the relative positioning of the major concepts in Neural Networks?	[7M]
	b)	How to Develop a Multichannel CNN Model for Text Classification? Explain	[7M]
		(OR)	
8.	a)	Draw and explain Schematic diagram of a recurrent neural network?	[7M]
	b)	Explain the basic operations performed in PyTorch in CNN?	[7M]

UNIT-V

9.	a)	Explain about one of Deep learning application Computer Vision?	[7M]
	b)	What is autoencoder? Explain various Regularized Autoencoders?	[7M]
		(OR)	
10.	a)	What Are Generative Adversarial Networks? Explain	[7M]
	b)	Explain about Reinforcement Learning Framework?	[7M]

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Code No: R2032422 **R20** SET -4

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Time: 3 hours Max. Marks: 70

Answer any **FIVE** Questions **ONE** Question from **Each unit**
All Questions Carry Equal Marks
*****

UNIT-I

1.	a)	What is Deep Learning and explain how it works with neat sketch.	[7M]
	b)	What is Kernel trick? Explain about Kernel methods in SVM?	[7M]
		(OR)	
2.	a)	What is overfitting? Explain how to prevent overfit by Reducing the network's size?	[7M]
	b)	What is weight regularization? Explain about L1 and L2 regularizations?	[7M]

UNIT-II

3.	a)	Explain how deep learning can be used for natural language processing?	[7M]
	b)	Write the algorithmic procedure to train the deep networks.	[7M]
		(OR)	
4.	a)	How can you use MODEL GENERALIZATION for avoiding overfitting?	[7M]
	b)	Write and explain Keras code for Deep neural networks?	[7M]

UNIT-III

5.	a)	What are the ways to setup the deep learning workstation? Explain.	[7M]
	b)	What is hypothesis space and explain the functionalities of Loss functions and Optimizers?	[7M]
		(OR)	
6.	a)	Explain about IMDB Dataset and build the network on top of dataset?	[7M]
	b)	How to validate your model? Explain how to generate predictions on new dataset?	[7M]

UNIT-IV

7.	a)	What is Representation Learning? Explain the Methods of Representation Learning	[7M]
	b)	Explain about the convolutional layers in CNN.	[7M]
		(OR)	
8.	a)	Explain the Implementation of RNN in Keras.	[7M]
	b)	What is tensors? Why are PyTorch Tensors Important for ML and DL?	[7M]

UNIT-V

9.	a)	Discuss about Denoising Autoencoders?	[7M]
	b)	Give the importance and working of n-grams in Natural Language processing?	[7M]
		(OR)	
10.	a)	Discuss about Restricted Boltzmann Machines?	[7M]
	b)	Explain about non-convolutional models to admit training of deep architectures?	[7M]