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

III B. Tech II Semester Regular/Supplementary Examinations, May/June -2024
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) What is supervised learning? What is mostly consisting it? What are more exotic variants in it? [7M]
   b) Evaluate the machine-learning models with illustration. [7M]

(OR)

2. a) Categorize the unsupervised learning. Explain each in detail. [4M]
   b) Explain the random forests and Gradient boosting machines in short. [10M]

UNIT-II

3. a) Examine how deep learning is incorporated into human language applications. [7M]
   b) Define a function for calculating cross-entropy cost. Discuss The most pertinent aspects of the equation. [7M]

(OR)

4. a) How artificial neurons are networked together to approximate an output for any given input? [7M]
   b) What is internal covariate shift in Batch Normalization? List out the positive effects of the batch norm. [7M]

UNIT-III

5. a) What is Keras? How Keras provides a convenient way to define and train deep-learning model? List out the key features of it. [7M]
   b) How to Load the Reuters dataset and decoding newswires back to text. [7M]

(OR)

6. a) Design the deep-learning software and hardware stack. Explain the typical Keras workflow. [7M]
   b) Show the Plotting the training and validation loss, validation accuracy. [7M]

UNIT-IV

7. a) Draw the computational graph to compute the training loss of a recurrent network. [7M]
   b) Explain the neural networks and representation learning. [7M]

(OR)

8. a) What are important design patterns for recurrent neural networks? Explain. [7M]
   b) Illustrate the Convolutional layers with examples. [7M]

UNIT-V

9. a) What is Auto-encoder? With neat sketch explain general structure of an auto-encoder. [7M]
   b) How the “connectionist” approach is used to learn arbitrary probability distributions over binary vectors? [7M]

(OR)

10. a) How the learning process is described with respect to loss function? [7M]
    b) Which deep generative model is first non-convolutional model? What is it`s role? Explain it. [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)	List out the branches of Machine Learning? Explain Self-supervised learning in detail.	[7M]
	b)	Define Artificial intelligence. Explain about Kernel methods.	[7M]
		(OR)	
2.	a)	Explain in detail about Simple Hold-Out Validation.	[7M]
	b)	How to reduce the network's size in Over-fitting and under-fitting? Explain.	[7M]

UNIT-II

3.	a)	Show the particular items to note in Kunihiko Fukushima proposed analogous architecture for machine vision.	[7M]
	b)	Illustrate the Keras code to architect and compile out an intermediate-depth neural network.	[7M]
		(OR)	
4.	a)	Describes how Gradient descent is a handy, efficient tool for adjusting a model's parameters with the aim of minimizing cost.	[7M]
	b)	Show the architecture for a single dense layer of sigmoid neurons.	[7M]

UNIT-III

5.	a)	Demonstrate the Keras, Tensor Flow, Theano, and CNTK with illustration.	[7M]
	b)	Explain a different way to handle the labels and the loss in Classifying newswires.	[7M]
		(OR)	
6.	a)	What is the best GPU for deep learning? Explain.	[7M]
	b)	Explain about Multiclass classification in detail.	[7M]

UNIT-IV

7.	a)	How ConvNet type enables a deep learning model to efficiently process spatial patterns.	[7M]
	b)	Illustrate the recurrent Neural Network Code with example.	[7M]
		(OR)	
8.	a)	Justify "convolutional layers especially effective in computer vision applications."	[7M]
	b)	Discuss the Deep learning with PyTorch in detail.	[7M]

UNIT-V

9.	a)	Justify "The Boltzmann machine is an energy-based model."	[7M]
	b)	Explain about Stochastic Encoders and Decoders.	[7M]
		(OR)	
10.	a)	What are generative adversial networks in interactive applications of deep learning? Explain.	[7M]
	b)	With neat diagram demonstrate about denoising Auto-encoders.	[7M]

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

III B. Tech II Semester Regular/Supplementary Examinations, May/June -2024
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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)	Discuss in detail about Reinforcement learning.	[7M]
	b)	Explain the history of Machine learning.	[7M]
		(OR)	
2.	a)	What are Training, validation, and test sets? How these terms are used in K-Fold Validation.	[7M]
	b)	What are decision trees? Discuss about Random forests in detail.	[7M]

UNIT-II

3.	a)	Justify Deep Learning Networks Learn Representations Automatically.	[7M]
	b)	Define Backpropagation. Explain the Tuning Hidden-Layer Count and Neuron Count in Backpropagation.	[7M]
		(OR)	
4.	a)	What is Batch Size and Stochastic Gradient Descent? Show the List of steps constitute a round of training.	[7M]
	b)	Discuss the Regression model. Show the Regression model network architecture with fitting of it.	[7M]

UNIT-III

5.	a)	Encode the integer sequences into a binary matrix in Preparing the data.	[7M]
	b)	Show the importance of having sufficiently large intermediate layers in Classifying newswires.	[7M]
		(OR)	
6.	a)	What are activation functions, and why are they necessary? Explain.	[7M]
	b)	Compare and Contrast the Binary classification and Multiclass classification.	[7M]

UNIT-IV

7.	a)	Explain the key differences between ANNs and CNNs.	[7M]
	b)	What is Recurrent Neural Network? Explain.	[7M]
		(OR)	
8.	a)	What is Representation learning? Explain.	[6M]
	b)	Discuss about PyTorch Tensors.	[8M]

UNIT-V

9.	a)	Discuss briefly about Boltzmann machines.	[7M]
	b)	Explain about Contractive Auto-encoders in detail.	[7M]
		(OR)	
10.	a)	Which model is a hybrid of sparse coding and parametric auto-encoders? Explain.	[7M]
	b)	Explain deep reinforcement learning in interactive application of deep learning.	[7M]

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)	Justify "In machine learning, the goal is to achieve models that generalize."	[7M]
	b)	What is Dropout? How it is using as techniques for neural network?	[7M]
		(OR)	
2.	a)	Demonstrate the Iterated K-Fold Validation With Shuffling.	[7M]
	b)	What is probabilistic modeling? Describe the early neural networks.	[7M]

UNIT-II

3.	a)	How individual neural units are linked together to form artificial neural networks.	[7M]
	b)	How model Generalization will be implemented to avoid overfitting.	[7M]
		(OR)	
4.	a)	Define Artificial Neural Networks. Examine the intricacies of artificial neurons.	[7M]
	b)	Explain the Softmax Layer of a Fast Food-Classifying Network.	[7M]

UNIT-III

5.	a)	With neat sketch show the Relationship between the network, layers, loss function, and optimizer.	[7M]
	b)	How to Loading the IMDB dataset? Discuss about The IMDB dataset.	[7M]
		(OR)	
6.	a)	Explain the building blocks of deep learning and networks of layers.	[7M]
	b)	Demonstrate The model definition, Compiling the model and Configuring the optimizer in Building your network.	[7M]

UNIT-IV

7.	a)	Summarize the RNN. Explain the Recurrent Neural Network Code.	[7M]
	b)	How the Convolutional Neural Network used in PyTorch? Explain.	[7M]
		(OR)	
8.	a)	Explain the Convolutional layers and Multichannel convolutional operation.	[7M]
	b)	What is PyTorch Tensor? Show the important design patterns for recurrent neural networks?	[7M]

UNIT-V

9.	a)	Summarize the Applications of Auto-encoders.	[5M]
	b)	What is Deep belief network? Draw The graphical model for a deep Boltzmann machine with one visible layer (bottom) and two hidden layers.	[9M]
		(OR)	
10.	a)	What is mission vision? Explain Natural Language Processing.	[7M]
	b)	With neat sketch draw the examples of models that may be built with restricted Boltzmann machines.	[7M]