Code No: **R204105E** **R20** **Set No. 1**

IV B.Tech I Semester Regular Examinations, January – 2024

DEEP LEARNING TECHNIQUES

(PE-IV: EEE, CSE, IT) (OE-IV: CE, ME, ECE, AME, MM, AGE, CSE-CS, CSE-IOTCSIBCT, CSE-IOT, FE, PHARM & CS)

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)	Is AI a science or is it engineering? Or neither or both? Explain.	[7]
	b)	Write down present and future scope of AI.	[7]
		(OR)	
2	a)	What are kernel methods in Deep learning? Explain.	[7]
	b)	Write down brief history and evolution of AI.	[7]

UNIT - II

3	a)	Discuss about types of Optimizers.	[7]
	b)	Explain the difference between AI, ML and DL.	[7]
		(OR)	
4	a)	How to improve Deep learning using weight initialization.	[7]
	b)	Explain the Google duplex project.	[7]

UNIT - III

5	a)	Explain different types of neural networks.	[7]
	b)	Explain the terms loss function and optimizers with respect to DL.	[7]
		(OR)	
6	a)	Explain the steps in setting up the deep learning workstation.	[7]
	b)	What is the best GPU for deep learning? Explain in detail.	[7]

UNIT - IV

7	a)	Explain about filters in CNN’s.	[7]
	b)	Explain about BPTT algorithm.	[7]
		(OR)	
8	a)	Discuss about neural networks and representation learning.	[7]
	b)	Explain the differences between ANN and CNN.	[7]

UNIT - V

9	a)	What are the regular algorithms used in NLP.	[7]
	b)	Discuss about training the dataset in GAN’s	[7]
		(OR)	
10	a)	What are some advantages of using machine vision over regular human inspection?	[7]
	b)	Explain the types of GAN’s.	[7]

Code No: **R204105E** **R20** **Set No. 2**

IV B.Tech I Semester Regular Examinations, January – 2024

DEEP LEARNING TECHNIQUES

(PE-IV: EEE, CSE, IT) (OE-IV: CE, ME, ECE, AME, MM, AGE, CSE-CS, CSE-IOTCSIBCT, CSE-IOT, FE, PHARM & CS)

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)	Define in your own words the terms: state, state space, search tree, Search node	[7]
	b)	Explain the terms Over fitting and Under fitting in ML.	[7]
		(OR)	
2	a)	How random forests are related to Decision trees.	[7]
	b)	What are the assumptions of Gradient boosting Algorithm?	[7]

UNIT - II

3	a)	What is optimization? What are the measures used to minimise cost.	[7]
	b)	Explain the deep learning network architecture.	[7]
		(OR)	
4	a)	Compare traditional machine learning approaches with current deep learning approaches.	[7]
	b)	Explain about biological vision and machine vision.	[7]

UNIT - III

5	a)	Plot the graph between training (i.e no. of epochs) and validation loss. Explain.	[7]
	b)	Explain the anatomy of a neural network.	[7]
		(OR)	
6	a)	Elaborate on Reuters dataset in detail.	[7]
	b)	Inspect the implementation of binary classification.	[7]

UNIT - IV

7	a)	Explain about the features of PyTorch library.	[7]
	b)	Explain the term Gated recurrent units in RNN’s.	[7]
		(OR)	
8	a)	Explain in detail about LSTM in RNN.	[7]
	b)	Explain why to use Recurrence neural networks other than CNN’s.	[7]

UNIT - V

9	a)	Can you explain how an image sensor is in context with machine vision?	[7]
	b)	Explain about Natural Language Processing.	[7]
		(OR)	
10	a)	How do GAN’s work?	[7]
	b)	Explain about various NLP tools.	[7]

Code No: **R204105E** **R20** **Set No. 3**

IV B.Tech I Semester Regular Examinations, January – 2024

DEEP LEARNING TECHNIQUES

(PE-IV: EEE, CSE, IT) (OE-IV: CE, ME, ECE, AME, MM, AGE, CSE-CS, CSE-IOTCSIBCT, CSE-IOT, FE, PHARM & CS)

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)	How can you improve the performance of the Gradient Boosting Algorithm?	[7]
	b)	What is a Decision tree algorithm? Explain.	[7]
		(OR)	
2	a)	How is it possible to perform un-supervised learning with Random Forest?	[7]
	b)	Explain how random forests give output for classification and regression problems.	[7]

UNIT - II

3	a)	Explain about Adaptive gradient algorithm.	[7]
	b)	Explain the terms forward and backward propagation in ML.	[7]
		(OR)	
4	a)	Illustrate on computation representation of language in Human and Machine language.	[7]
	b)	Enumerate the concept of L_1 and L_2 regularization in detail.	[7]

UNIT - III

5	a)	Discuss about keras workflow.	[7]
	b)	Explain the terms loss function and optimizers with respect to DL.	[7]
		(OR)	
6	a)	Explain about the architecture of Keras.	[7]
	b)	Explain the concept “Deep learning with Cloud”.	[7]

UNIT - IV

7	a)	Discuss about PyTorch Vs TensorFlow.	[7]
	b)	Explain about multi-channel convolutional operation in neural networks.	[7]
		(OR)	
8	a)	Explain about convolutional operation in neural networks.	[7]
	b)	What do you mean by weight sharing? Explain weight sharing in CNNs.	[7]

UNIT - V

9	a)	What are Boltzmann machines and Restricted Boltzmann machines?	[7]
	b)	Explain about Machine vision libraries.	[7]
		(OR)	
10	a)	What are the differences between GAN and Auto-encoders?	[7]
	b)	What are the steps involved in typical deep reinforcement learning algorithm.	[7]

Code No: **R204105E** **R20** **Set No. 4**

IV B.Tech I Semester Regular Examinations, January – 2024

DEEP LEARNING TECHNIQUES

(PE-IV: EEE, CSE, IT) (OE-IV: CE, ME, ECE, AME, MM, AGE, CSE-CS, CSE-IOTCSIBCT, CSE-IOT, FE, PHARM & CS)

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 about Probabilistic modelling in detail.	[7]
	b)	Describe the role of Artificial Intelligence in Natural Language Processing.	[7]
		(OR)	
2	a)	How is it possible to perform un-supervised learning with Random Forest?	[7]
	b)	Interpret the concept of Underfitting with a suitable example.	[7]

UNIT - II

3	a)	How to know if our model is suffering from the Exploding/Vanishing grad problem.	[7]
	b)	Elaborate on various cost functions used in training deep networks.	[7]
		(OR)	
4	a)	What is optimization? What are the measures used to minimise cost.	[7]
	b)	Discuss about the Softmax layer of a Fast Food – classifying Network.	[7]

UNIT - III

5	a)	Discuss the classification of newswires and explain with the dataset.	[7]
	b)	With a neat sketch, enumerate the concept of the deep-learning software hardware stack.	[7]
		(OR)	
6	a)	Explain the high-level building blocks required for developing deep-learn models.	[7]
	b)	Explain different types of neural networks.	[7]

UNIT - IV

7	a)	What are the advantages of using Convolutional neural networks over other neural networks.	[7]
	b)	How CNN's and RNN's works with PyTorch.	[7]
		(OR)	
8	a)	Implement stride and padding with a practical example.	[7]
	b)	Enumerate the concept of sequence learning problems.	[7]

UNIT - V

9	a)	What is Deep-Net in Deep learning?	[7]
	b)	How do Restricted Boltzmann Machines work.	[7]
		(OR)	
10	a)	What are the advantages of Deep belief networks	[7]
	b)	Discuss in detail about Denoising Auto encoders with a suitable example.	[7]