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| **P.V.P SIDDHARTHA INSTITUTE OF TECHNOLOGY** |
| **BRANCH: Computer Science & Engineering** | **REGULATION: PVP20** |
| **Course: B.Tech** | **SUBJECT:**   **DEEP LEARNING** |
| **Subject Code:**  **20CS4701A** | **Year and Semester: IV-I** |
| **QUESTION BANK**  |

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|  **Unit-I** | **CO**  | **Level** |
| 1 | Explain the role of learning rate in neural network performance. | CO1 | L2 |
| 2 | Summarize the significance of Hyperparameters in performance of the model. | CO1 | L2 |
| 3 | Compare and contrast single layered model and multi layeredperceptron model. | CO1 | L2 |
| 4 | Identify the differences between Feed forward and Feed backward Neural networks. | CO1 | L2 |
| 5 | Illustrate the Common Architectural Principles of Deep Networks. | CO1 | L2 |
| 6 | Illustrate an objective function of Rectified Linear Unit. | CO1 | L2 |
| 7 | List and explain the various activation functions used in modeling of artificial neuron. Also explain their suitability with respect to applications. | CO1 | L2 |
| 8 | Explain the following terms denoting their notations andequations (where necessary) with respect to deep neuralnetworks:((Any-5)1) Connection weights and BiasesExplain the following terms denoting their notations andequations (where necessary) with respect to deep neuralnetworks:(Any-5)1) Connection weights and Biases 2) Epoch 3) Layers and Parameters 4) Activation Functions 5) Loss/Cost Functions 6) Learning rate | CO1 | L2 |
| 9 | Explain Activation Functions with diagram and theproperties it must hold in neural network model. | CO1 | L2 |
| 10 | What is Hyperparameter and classify various types ofHyperparameter. | CO1 | L2 |
| **Unit-II** |  |
| 1 | List and explain the principles of Restricted Boltzmann machine with an example. | CO4 | L4 |
| 2 | [Explain the difference between the discriminative and generative models.](https://avatto.in/data-scientist/interview-questions/deep-learning/adversarial/page/3/#shrt-collapse-5) | CO1 | L2 |
| 3 | Identify the benefits of using pre trained networks models. | CO1 | L2 |
| 4 | Demonstrate how a situation like slow learning, becoming stuck in local minima can be handled in deep learning. | CO2 | L2 |
| 5 | [Illustrate the roles of the discriminative and generative models.](https://avatto.in/data-scientist/interview-questions/deep-learning/adversarial/page/3/#shrt-collapse-5)Identify the differences of variational Auto-encoders from Auto encoders. | CO2 | L2 |
| 6 | Illustrate various components and their operations in Generative Adversarial Networks | CO2 | L2 |
| 7 | Explain the phases in Restricted Boltzmann Machine with a neat diagram. | CO2 | L2 |
| 8 | Outline various components and their operations in Deep Belief Networks | CO2 | L2 |
| 9 | (A)List the Hyperparameters for autoencoder.(B)Explain Bottleneck in Architecture of Autoencoders. | CO4 | L4 |
| 10 | Demonstrate the concept of Latent Attributed.  | CO4 | L4 |
| **Unit-III** |  |
| 1 | 1. Examine the convolution operation.
2. List and explain the various activation functions used in modeling of artificial neuron
 | CO4 | L4 |
| 2 | Summarize the Basic Convolutional Neural Network Architecture | CO1 | L2 |
| 3 | Examine the concept “[What happens when the value of stride is high and low?](https://avatto.in/data-scientist/interview-questions/deep-learning/convolution-neural-networks/#shrt-collapse-5) With an example” | CO4 | L4 |
| 4 | Illustrate the operation of pooling layer in CNN with simple example. | CO1 | L2 |
| 5 | Analyse local connections, convolution and full connections with diagram? | CO4 | L4 |
| 6 | Construct a graphical demonstration for parameter sharing and explain it in detail. | CO3 | L3 |
| 7 | Build a table with examples of different formats of data that can be used with convolutional networks. | CO3 | L3 |
| 8 | Distinguish locally connected layers, tiled convolution and standard convolution with suitable examples and diagram. | CO4 | L4 |
| 9 |  Illustrate the concept of Unsupervised Features in convolutional neural network.  | CO1 | L2 |
| 10 | Explain the following concerning to Convolutional Neural Networks (i)Input Types(ii) Data Types (iii) Structured Outputs | CO1 | L2 |
| **Unit-IV** |  |
| 1 | Develop an example for Unfolding Computational Graphs and describe the major advantages of unfolding process. | CO3 | L3 |
| 2 | [Identify the difference between the Recurrent network and feedforward network?](https://avatto.in/data-scientist/interview-questions/deep-learning/recurrent-neural-netowork/#shrt-collapse-1) | CO3 | L3 |
| 3 | Identify why [vanishing gradient problem occurs in RNN?](https://avatto.in/data-scientist/interview-questions/deep-learning/recurrent-neural-netowork/#shrt-collapse-3) | CO3 | L3 |
| 4 | Construct any two applications of Deep Recurrent Networks. | CO3 | L3 |
| 5 | Model the structure of LSTM component. | CO3 | L3 |
| 6 | Distinguish between LSTM and gated recurrent units. | CO4 | L4 |
| 7 | Explain impact of Optimization for Long-Term Dependencies.  | CO3 | L3 |
| 8 | Explain how to compute the gradient in a Recurrent Neural Network. | CO1 | L2 |
| 9 | Classify various Gated RNNs with their architectures. | CO4 | L4 |
| 10 | Demonstrate Encoder- Decoder RNN architecture with neat sketch. | CO1 | L2 |
| **Unit-V** |  |
| 1 | Identify the suitable activation function for spectrogram image classification is and defend your statement.  | CO3 | L3 |
| 2 | Model the phases of dataset preparation in sentiment analysis. | CO3 | L3 |
| 3 | Develop the concept “How overfitting and Underfitting are recognized in a model dealing with real-time data”. | CO4 | L4 |
| 4 | Conceptualize the process identifying an object from the image using deep learning techniques.  | CO4 | L4 |
| 5 | Explain the applications of Deep learning in NLP? | CO1 | L2 |
| 6 | List the applications of Deep learning in Computer Vision? | CO4 | L4 |
| 7 | Show a case study on Deep learning for Speech synthesis.  | CO4 | L4 |
| 8 | Analyze the process flow and operations performed in fake news classification.  | CO4 | L4 |
| 9 | Analyze the process flow and operations performed in Sentiment Analysis. | CO3 | L4 |
| 10 | List the applications of Deep learning in computer network management. | CO4 | L4 |