Reg. No. \_\_\_\_\_\_\_\_\_\_\_\_\_



**End Semester Examination – Nov / Dec – 2019**

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| **Code :** | **18CS3106** | **Duration :** | **3hrs** |
| **Sub. Name :** | **DEEP LEARNING** | **Max. Marks :** | **100** |

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| **Q. No.** | **Sub Div.** | **Questions** | **Course Outcome** | **Marks** |
| **ANSWER ANY FIVE QUESTIONS (5 X 16 = 80 Marks)** | | | | |
| 1. | a. | Sketch the McCulloch-Pitts perceptron model and discuss its components. | CO1 | 8 |
| b. | Consider the following house price prediction neural network model with the four inputs . Apply one of the linear models for the hidden layer and show the steps to train the neural network. | CO1 | 8 |
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| 2. | a. | Elaborate on deep forward neural networks using the following XOR problem graph. Fig.1 | CO1 | 8 |
| b. | Write an algorithm for Backpropagation in Neural Networks and show the intuitions with an example. | CO1 | 8 |
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| 3. | a. | Sketch a basic Convolutional Neural Network architecture and outline its components. | CO2 | 8 |
| b. | Show the inception module in GoogleNet and discuss its component in details. | CO2 | 8 |
| 4. | a. | Analyze the challenges in non-convex optimization in deep learning. | CO4 | 8 |
| b. | Illustrate the Adam optimization algorithm and explain the impact of adaptive learning rate algorithm in neural network performance. | CO4 | 8 |
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| 5. | a. | Draw and explain the block diagram of LSTM recurrent network cell. | CO5 | 8 |
| b. | Discuss the need for Generative Adversarial Networks (GAN) and explain the convolutional generative networks. | CO5 | 8 |
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| 6. | a. | Distinguish shallow and deep neural networks with its structure and applications. | CO2 | 8 |
| b. | Sketch the basic model of autoencoder and describe its components with autencoder applications. | CO3 | 8 |
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| 7. |  | Elaborate any two stochastic optimization generalization algorithms in neural networks with example. | CO3 | 16 |
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| **COMPULSORY QUESTION (1 X 20 = 20 Marks)** | | | | |
| 8. |  | “Computer Vision is one of the applications of deep learning”.Demonstrate the preprocessing steps and model training using ImageNet. | CO6 | 20 |