

BACHELOR OF TECHNOLOGY (CBCS) (2021-COURSE)
B. Tech. Sem - VII Computer Science & Engineering : SUMMER : 2025
SUBJECT: DEEP LEARNING

Day : Thursday
Date : 15/05/2025

S-25605-2025

Time : 02:30 PM-05:30 PM
Max. Marks : 60

N.B.

- 1) All questions are **COMPULSORY**.
- 2) Figures to the **RIGHT** indicate **FULL** marks.
- 3) Assume suitable data **WHEREVER** necessary.
- 4) Draw neat labeled diagrams **WHEREVER** necessary.
- 5) Answer to both the sections should be written in **SAME** answer book.

Q.1 Describe perceptron model and compare single layered and multi layered perceptron model. (10)

OR

Describe concept of back propagation algorithm for neural network training with suitable example. (10)

Q.2 Define Regularization? Explain regularization techniques in Deep Learning. (10)

OR

Explain the terms weight initialization and hyperparameter training with respect to training of deep Learning model. (10)

Q.3 Define Activation Function? Explain different types of activation functions used in CNN. (10)

OR

Determine the shape of output matrix of an image size 19×19 that uses a 3 padding. Size 2, stride 2 and a 5×5 filter. (10)

Q.4 Define Recursive Neural Network? Explain difference between feed forward neural Network and Recurrent Neural Network. (10)

OR

Explain the term GRU with respect to RNN. (10)

Q.5 What are second-order optimization methods, and why are they computationally expensive for deep neural network? Briefly mention one approximate second-order method and explain its advantages. (10)

OR

Discuss the application of second-order methods to the training of deep networks. (10)

Q.6 Describe the process of generating image captions using pre-trained models like image captioning models. How these models do combines computer vision and natural language generation? Discuss the potential applications of image captions. (10)

OR

Explain how pre-trained models, such as VGG-16 or FaceNet, are employed in face recognition systems. Discuss the challenges and ethical considerations related to face recognition technology. (10)

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