

BACHELOR OF TECHNOLOGY (CBCS) (2020 COURSE)
B.Tech.Sem - VII COMPUTER SCIENCE & ENGINEERING : SUMMER : 2024
SUBJECT: DEEP LEARNING

Day : Tuesday
Date : 14/05/2024

S-24344-2024

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 Define Feed-Forward Neural network and how does it work? Explain it in detail (10)
with real life example.

OR

Draw and Explain the architecture of Thresholding Logic. Also, Explain how (10)
weights are adjusted in Thresholding Logic

Q.2 Define Gradient descent? Explain Momentum Based and Nesterov Accelerated (10)
Gradient Decent.

OR

Define Data Augmentation. How does it work? Also, Describe image processing (10)
activities for data augmentation.

Q.3 Why pooling layer is used in CNN architecture? Explain with suitable example. (10)
i) Max
ii) Min
iii) Average pooling technique

OR

Write short note on various CNN architectures LeNet, AlexNet, ZF-Net, VGGNet, (10)
GoogleNet and ResNet.

Q.4 Define Recurrent Neural Network (RNN)? Explain working of RNN with (10)
Architecture.

OR

Write short note on auto encoder. How variational auto encoder (VAE) is differ (10)
from basic auto encoder.

Q.5 Elaborate on the concept of momentum in optimization algorithm. How does (10)
momentum help in overcoming certain challenges during training and what are the
typical values used for momentum in practice.

OR

Provide an overview of meta-learning algorithms and their role in optimizing neural (10)
network. Give an example of a meta-algorithm and how it can be applied to improve
the training of deep networks.

Q.6 Describe the WaveNet architecture and its application in audio-related tasks. How (10)
does it generate audio waveforms and the key advantages of using WaveNet in
speech synthesis and recognition?

OR

Explain the Word2Vec model and its role in natural Language Processing (NLP). (10)
Discuss how Word2Vec embedding are trained, their applications in NLP and their
benefits for semantic understanding.