*R20 Regulation* *Subject code:3E7GA*

# TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A+' Grade)

**B.Tech VII Semester Supplementary Examinations, November 2025**

## DEEP LEARNING

*(CSE(AIML))*

***Maximum Marks: 70*** Date: 24.11.2025 Duration: 3 hours

**Note:** **1.This question paper contains two parts A and B.**
**2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.**
**3. Part B consists of 5 Units. Answer any one full question from each unit.**
**4. Each question carries 10 marks and may have a, b, c, d as sub questions.**

Part-A

| All the following questions carry equal marks (10X2M=20 Marks) | | Marks | CO | BTL |
|---|---|---|---|---|
| 1 | What is regularization? | 2M | 1 | L1 |
| 2 | What is meant by Adversarial training? | 2M | 1 | L1 |
| 3 | What is a loss function? | 2M | 2 | L1 |
| 4 | What is Pooling | 2M | 2 | L1 |
| 5 | What is a computational graph. | 2M | 3 | L1 |
| 6 | Define computer vision | 2M | 3 | L1 |
| 7 | What is RNN? | 2M | 4 | L1 |
| 8 | What is greedy layer? | 2M | 4 | L1 |
| 9 | What is learning about Dependencies | 2M | 5 | L1 |
| 10 | Define speech recognization. | 2M | 5 | L1 |

Part-B

| Answer All the following questions. (5X10M=50Marks) | | Marks | CO | BTL |
|---|---|---|---|---|
| 11 | a) Explain learning XOR.<br>b) Explain semi-supervised under- constrained problem. | 5M<br>5M | 1 | L2 |
| | OR | | | |
| 12 | a) Explain Back Propagation Algorithm with an example.<br>b)What are the challenging issues motivating deep learning. | 5M<br>5M | 1 | L2 |
| 13 | Discuss how learning differs from pure optimization. | 10M | 2 | L2 |
| | OR | | | |
| 14 | How learning differs from pure optimization, challenges in neural network optimizer? | 10M | 2 | L2 |
| 15 | Explain the long short term memory and other gated RNN's. | 10M | 3 | L2 |
| | OR | | | |
| 16 | Explain the application of Deep learning: Natural Language processing, speech recognition and computer vision. | 10M | 3 | L2 |

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|---|---|---|---|---|
| 17 | a) Explain stochastic encoders and decoders.<br>b) Explain Denoising Autoencoders. | 5M<br>5M | 4 | L2 |
| | OR | | | |
| 18 | Explain Transfer Learning and Domain Adaption. | 10M | 4 | L2 |
| 19 | a) Explain learning about dependencies.<br>b) Explain Inference and approximate inference. | 5M<br>5M | 5 | L2 |
| | OR | | | |
| 20 | Explain the deep learning approach to structured probabilistic models. | 10M | 5 | L2 |