

Enrolment No. /Seat No.: \_\_\_\_\_

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**MCA INTEGRATED – SEMESTER VIII- EXAMINATION –WINTER-2024**

**Subject Code:2688602**

**Date: 22/11/2024**

**Subject Name: Advance Machine Learning**

**Time:02:30 PM TO 05:00 PM**

**Total Marks: 70**

**Instructions:**

1. Attempt all questions.
2. Make Suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Use of simple calculators and non-programmable scientific calculators are permitted.

- Q.1 (a)** Answer following questions **07**
- (1) Define : Deep Learning
  - (2) What is shallow Neural Network?
  - (3) Write full form of CNN and define it.
  - (4) What is the role of hyper parameter in deep learning?
  - (5) Define : Generative Adversarial Network.
  - (6) What is Q-learning?
  - (7) What is Vanishing Gradient problem?
- (b)** Differentiate Machine Learning Vs Deep Learning. Explain in brief about the applications of Deep Learning. **07**
- Q.2 (a)** What is Neural Network? Explain neural network architecture with key concepts of Deep Learning. **07**
- (b)** Explain the following image operations using OpenCV. **07**
- (1) Read (2) Save (3) Resize (4) Rotate
- OR**
- (b)** What is backpropagation in neural network? Explain backpropagation in CNN. **07**
- Q.3 (a)** What is recurrent Neural network? Explain it in brief with its applications. **07**
- (b)** Explain the working process of GAN. Write steps of training GAN, **07**
- OR**
- Q.3 (a)** Explain long short term memory network. **07**
- (b)** Explain Vanishing Gradient Problem and Exploding Gradient Problem. **07**
- Q.4 (a)** What is reinforcement learning? Explain it with its key terms. **07**
- (b)** Explain Terms : Tensor flow, Theano, PlaidML and CNTK. **07**
- OR**
- Q.4 (a)** Explain DQNS and DDPG. **07**
- (b)** Explain applications of GAN. **07**
- Q.5 (a)** What is NLP? Explain the process of knowledge extraction from speech, text and language. **07**
- (b)** What is regular expression? Explain Automata. How will you find similarity in given texts? Explain it with example. **07**
- OR**
- Q.5 (a)** What is sentiment analysis? Explain categorization using suitable example. **07**
- (b)** What is sequential decision making? Explain markov decision process. **07**

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