

Max. Marks 80

Instructions:

- (1) Question 1 is compulsory, solve any three from remaining questions
- (2) Assume suitable data if necessary.
- (3) Diagrams to be drawn neatly.

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| Q1(A) | Define regularization? Explain L1, L2 regularization in deep learning? | 05 |
| Q1(B) | What is the Role of Activation Functions in a Neural Network?
Explain RELU activation function used in deep learning. | 05 |
| Q1(C) | Compare CNN and RNN. | 05 |
| Q1(D) | Explain perceptron learning rule. | |
| Q2(A) | Explain the working of stochastic gradient descent algorithm. How it is different from minibatch gradient descent algorithm? | 10 |
| Q2(B) | What are auto encoders? How they are classified? Explain the operation of de noising autoencoder? | 10 |
| Q3(A) | Draw block diagram and explain Generative adversarial network (GAN) architecture. State its advantages and disadvantages | 10 |
| Q3(B) | What is Recurrent Neural Network (RNN)? Explain its working? State its advantages, disadvantages and applications. | 10 |
| Q4(A) | Explain architecture of CNN? What are its advantages, disadvantages and applications. | 10 |
| Q4(B) | Explain concept of over fitting in deep learning? Explain early stopping regularizations in detail. | 10 |
| Q5(A) | Explain architecture of ZF Net.. | 10 |
| Q5(B) | With neat diagram explain the architecture of long short term memory (LSTM)? | 10 |

Solve any **TWO** of the following.

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| Q6(A) | Explain concept of biological neuron with neat diagram? Differentiate between linearly separable and non separable classes. | 10 |
| Q6(B) | Explain applications of deep learning in image compression. | 10 |
| Q6(C) | Explain Momentum Based GD, Nesterov Accelerated GD algorithms. | 10 |
