

MCA Sem.-3 Examination
Deep Learning
December-2025

Time : 3.00 Hours]

[Max.Marks :50

Instructions:

- Write both the Sections in the separate answer book.
- Both Sections having equal weightage.
- Draw Diagrams wherever necessary.
- Make Assumptions wherever necessary.

SECTION – I

- Q-1 Explain the following terms with an appropriate example (any five): 05**
1. Bias in Neural Network
 2. Feature Representation
 3. Pooling
 4. Overfitting
 5. Activation Function
 6. Universal Approximation Theorem
- Q-2 Attempt the following (any five): 10**
1. Differentiate between AI, Machine Learning and Deep Learning.
 2. State the importance of Backpropagation.
 3. Define Convolution with an example.
 4. What is the use of Dropout?
 5. Define Vanishing Gradient Problem.
 6. What is an Epoch in model training?
 7. What is Learning Rate and Loss function? Explain the difference between them.
- Q-3 Attempt the following (Any two): 10**
1. Explain Feed Forward Neural Network architecture with neat diagram.
 2. Explain Convolution Neural Network (CNN) architecture.
 3. Explain Bias–Variance Tradeoff in Deep Learning.

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SECTION – II

- Q-4 Explain the following Terms with an appropriate example. (any five) 05**
- a. Auto-Regressive Model
 - b. Adam Optimizer
 - c. L2 Regularization
 - d. Bidirectional RNN
 - e. Transfer Learning
 - f. Data Augmentation
 - g. Noise Robustness
- Q-5 Attempt the following (any five): 10**
- a. What is Multi-Task Learning?
 - b. What is Adversarial Training?
 - c. Define Second Order Optimization Methods.
 - d. What is Mini-batch Gradient Descent?
 - e. What is Time Series Forecasting?
 - f. Define Recursive Neural Networks. How different is it from Bidirectional RNN
- Q-6 Attempt the following (any two): 10**
- a. Explain AlexNet and GoogLeNet architectures.
 - b. Explain Practical implementation steps of a CNN model.
 - c. Explain Optimization challenges in Deep Learning.

**MCA Sem.-3 Examination
Full Stack Web Development
December-2025**

Time : 3.00 Hours]

[Max.Marks :50

Instruction :

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- Both Sections having equal weightage.
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- Make assumptions wherever necessary

SECTION - I

Q.1 (A) Answer the following questions in one word or one line [Each question carries 1 Mark] [4 M]

- a. What is a type in TypeScript?
- b. Name any two React hooks.
- c. What is NPM?
- d. What is the DOM?

Q.1 (B) Answer the following in detail [Each question carries 2 Marks] (any 2) [4 M]

- a. What is the purpose of readline module?
- b. What is the difference between the request and response object in a node.js server?
- c. Explain the difference between type and interface in TypeScript.

Q.2 Answer the following in detail [Each question carries 3 Marks] [9 M]

- a. Write a short note on the main differences between javascript and typescript?
- b. Explain the working of a JavaScript engine. What is the role of the V8 engine?
- c. How do you compress and decompress files using the zlib module?

OR

Q.2 Answer the following in detail [Each question carries 3 Marks] [9 M]

- a. What are the three states of a Promise?
- b. What is the difference between alert(), prompt(), and confirm()? Write when you would use each.
- c. Write a function that takes a callback as a parameter and specify the types of both parameters.

Q.3 Answer the following questions in detail [Each question carries 4 Marks] [8 M]

- a. Explain the difference between the following array methods: a. push() b. pop() c.shift() d. unshift() with an example.
- b. What is middleware in Express.js? Explain different types with examples.

P.T.O.

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OR

- Q.3 Answer the following questions in detail** [Each question carries 4 Marks] [8 M]
- What is REST API? Explain with an example.
 - What is a function in JavaScript? Explain the advantages of using functions.

SECTION - II

- Q.4 (A) Answer the following multiple-choice questions by choosing the correct option:** [4 M]
[Each question carries 1 Mark]

- Which command starts a React TypeScript development server?
- What hook is commonly used for state in React + TS?
- What is the use of let and const keyword in javascript?
- What is the event loop in Node.js?

- Q.4 (B) Answer the following in detail.** [Each question carries 2 Marks] (any 2) [4 M]

- What is a built-in module? Give one example.
- Define primitive data types in JavaScript. Name and briefly describe
- Create a tuple that stores a string and a number, write its code in TypeScript.

- Q.5 Answer the following in detail** [Each question carries 3 Marks] [9 M]

- Explain the role of the new keyword in constructor functions with an example.
- What is a regular expression? Explain with syntax and real-life use cases in web development.
- Write any 3 rules of writing valid JSON syntax.

OR

- Q.5 Answer the following in detail** [Each question carries 3 Marks] [9 M]

- Why is JSON preferred over XML in modern APIs?
- What is the difference between serving static files manually vs using `express.static()`?
- Write a program to Create an array of strings and loop through it using `for...of` in TypeScript.

- Q.6 Answer the following questions in detail.** [Each question carries 4 Marks] [8 M]

- What is callback hell? How can it be avoided?
- What is a Promise in JavaScript? Explain it with an example.

OR

- Q.6 Answer the following questions in detail.** [Each question carries 4 Marks] [8 M]

- How does Express.js help in creating REST APIs?
- How are callback functions useful in asynchronous programming?

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