

W41

0107E801

Candidate's Seat No: _____

**IM.Sc. (CS) Sem.-8 Examination
Web Server Management**

Time : 3.00 Hours]

July-2025

[Max.Marks : 70

Instructions:

- Explain Each Section with Proper Examples and Diagram if required.

Section 1

Q.1 – True or False

(10 Marks)

Write True or False for the following statements:

1. Apache HTTPD is a closed-source web server software.
2. The main configuration file for Apache HTTPD is located at `/etc/httpd/conf/httpd.conf`.
3. The `'Listen'` directive is used to define the IP address and port on which Apache listens.
4. Apache modules cannot be loaded dynamically at runtime.
5. The `'DocumentRoot'` directive specifies the directory from which Apache serves files.
6. CGI scripts can be enabled using the `'mod_cgi'` module.
7. Apache does not support SSL/TLS encryption.
8. The `'AllowOverride'` directive controls the use of `'.htaccess'` files.
9. Directory-level configuration is done using `'<Directory>'` containers.
10. Apache HTTPD must be restarted for every configuration file change to take effect.

Q-2 Fill in the Blanks

(10 Marks)

Fill in the blanks with the correct answer:

1. The command to install Apache HTTPD on RHEL 9 is _____.
2. Apache's configuration directory in RHEL 9 is '_____.'
3. The module used to support SSL in Apache is _____.
4. To test the syntax of the Apache configuration, use the command _____.
5. The default port for HTTPS is _____.
6. The command to start Apache service is _____.
7. The directive _____ is used to define authentication type.
8. Apache log files are stored in the directory _____.
9. WSGI scripts are commonly used for deploying _____ web applications.
10. The directive _____ defines which users or groups can access a specific directory.

(P.T.O)

Q. 3– Short Answer Questions**(15 Marks)**

Answer any five of the following in 3–4 sentences each:

1. What are the key features and benefits of Apache HTTPD on RHEL 9?
2. Explain the difference between <Directory> and <Location> containers in Apache.
3. Describe the steps to enable and configure SSL in Apache HTTPD.
4. What is the purpose of the httpd.conf file in Apache?
5. What is the use of .htaccess files, and how does AllowOverride affect them?

Section 2**Q.4 – Descriptive and Analytical Questions (attempt any 3)****(35 Marks)**

1. Describe the process of installing and starting Apache HTTPD on RHEL 9. Include command-line steps and service management.
2. Explain the role and configuration of Apache authentication mechanisms — Basic and Digest. Include sample configurations.
3. Discuss the configuration and significance of SSL in Apache HTTPD. How do you generate and use a self-signed certificate?
4. Compare and contrast CGI and WSGI. How can you configure Apache to support a Python WSGI-based web application?

0107E801-3

Candidate's Seat No: _____

**IM.Sc. (CS) Sem.-8 Examination
Machine Learning**

Time : 3.00 Hours]

July-2025

[Max.Marks : 70

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 Answer the following questions:

[15]

- Explain the concepts of bias and variance in machine learning. How do they affect model performance?
- Compare the Elbow Method and Silhouette Score for determining the optimal number of clusters in K-means.
- Convert the word "INTENTION" to " EXECUTION" using the minimum number of edit operations.

OR

(c) Compute the cosine similarity for the following documents:

Document 1: "machine learning algorithms are easy"

Document 2: "Algorithms for learning machines are hard"

Q.2 Attempt the following (Any TWO)

[20]

- What are the different types of data used in machine learning? Explain with examples.
- Difference Simple Linear Regression and Multiple Linear Regression? Derived the equation for slope and intercept of best fit line in Simple Linear Regression.
- What is hierarchical clustering? Explain the difference between agglomerative and divisive clustering. Also, describe the different linkage methods used in hierarchical clustering.

(P.T.O)

SECTION – II

Q.3 Answer the following questions:

[15]

- (a) What is the purpose of the Attribute Selection Measure (ASM) in decision trees? Describe various Attribute Selection Measure method.
- (b) What is the kernel trick, and why is it important in SVM?

OR

- (b) Compare the Linear Kernel, Polynomial Kernel, and RBF Kernel in terms of their use cases.
- (c) Define the following terms in SVM:
- Hyperplane
 - Support Vectors
 - Margin
 - Kernel
 - Regularization (C)

Q.4 Attempt the following (Any TWO)

[20]

- (a) What is Ensemble Learning. Explain various techniques in Ensemble Learning.
- (b) What is a Random Forest algorithm? Explain its working with steps and advantages. Why is it considered more accurate than a single decision tree?
- (c) Given the following linearly separable 2D dataset:

| Points | Class |
|--------|--------|
| (1, 2) | Circle |
| (2, 3) | Circle |
| (3, 1) | Circle |
| (0, 0) | Square |
| (1, 1) | Square |
| (2, 0) | Square |

Let Support vectors are identified as (1, 2), (2, 0), and (1, 1) then compute:

- a) The weight vector w
- b) The bias term b
- c) The equation of the optimal hyperplane
- d) Identify the label of point (2,2).