

**ADIKAVI NANNAYA UNIVERSITY**  
**RAJAMAHENDRAVARAM**  
**B.Sc Computer Science Under CBCS**  
**(Examination at the end of Sixth Semester)**  
**III B.Sc Computer Science VI-Semester**

**MODEL QUESTION PAPER**

**Paper - VII : Elective - I : A. OPERATING SYSTEMS**

**Time : 3 Hours**

**Max.Marks : 75**

**SECTION - A**

Answer any **FIVE** of the following questions.

**5 x 5 M = 25 M**

1. Define Operating System and Explain Operating System Functions.
2. What are the differences between Real Time and typical Operating System?
3. Explain process scheduling.
4. Explain about semaphores.
5. What are the differences between paging and segmentation?
6. Write about allocation of frames in virtual memory management.
7. Discuss various file access methods.
8. Explain about Deadlock and Recovery.

**SECTION - B**

Answer **ALL** the following questions.

**5 x 10 M = 50 M**

9. a) Explain Computer System Architecture.  
(or)  
b) Explain the various operating system services.
10. a) Explain preemptive scheduling algorithms.  
(or)  
b) Write about classic problems of synchronization.
11. a) Briefly explain about paging and segmentation in memory management.  
(or)  
b) Explain page replacement algorithms.
12. a) Write about Directory Structure.  
(or)  
b) Explain Disk Scheduling.
13. a) Define Deadlock. Explain Deadlock characterization and methods for handling Deadlocks.  
(or)  
b) Explain about Deadlock Avoidance.

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**MODEL QUESTION PAPER**

**Paper - VII : Elective - I : B. COMPUTER NETWORKS**

**Time : 3 Hours**

**Max.Marks : 75**

**SECTION - A**

Answer any **FIVE** of the following questions.

**5 x 5 M = 25 M**

1. What are the Categories of Networks? Explain.
2. Discuss about Stop and Wait ARQ.
3. Discuss about IP addressing and their classes?
4. Explain IPv4.
5. What is Port Addressing? Explain briefly.
6. List and briefly explain the services of Transport Layer
7. Briefly write about WWW.
8. What is FTP? How it works?

**SECTION - B**

Answer **ALL** the following questions.

**5 x 10 M = 50 M**

9. a) Discuss about the Internet Model with its neat sketch.  
(or)  
b) List the various transmission media. Discuss about Guided media.
10. a) What are the various error detection methods? Explain CRC with an example.  
(or)  
b) Discuss about the Fast Ethernet and their implementations.
11. a) What is routing? Explain different routing techniques.  
(or)  
b) What are the different kinds of Routing Protocols ? Explain RIP.
12. a) Explain Transmission Control Protocol with its State Transition diagram?  
(or)  
b) What are various Congestion Control Algorithms? Explain Leaky bucket algorithm.
13. a) What is DNS? Explain DNS in internet.  
(or)  
b) What is an Electronic Mail? Explain SMTP.

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**MODEL QUESTION PAPER**

**Paper - VII : Elective - I : C. WEB TECHNOLOGIES**

**Time : 3 Hours**

**Max.Marks : 75**

**SECTION - A**

Answer any **FIVE** of the following questions.

**5 x 5 M = 25 M**

1. Write about formatting options in HTML.
2. What are the different types of lists we can create in HTML page ?
3. Explain frames in HTML.
4. Write about HTML Block & Inline elements.
5. How to use functions in JavaScript?
6. How to open a new window in Javascript?
7. How to validate data using JavaScript?
8. Write brief note on XML web services.

**SECTION - B**

Answer **ALL** the following questions.

**5 x 10 M = 50 M**

9. a) Explain the structure of HTML.  
(or)  
b) How to create forms in HTML? Explain with an example.
10. a) Explain the concept of layers in CSS. How to create them?  
(or)  
b) Explain how to use styles in CSS.
11. a) Write about string manipulations in JavaScript.  
(or)  
b) What are regular expressions in JavaScript? How to use them?
12. a) Explain data validation concept in detail.  
(or)  
b) Explain briefly about Rollover Buttons.
13. a) Explain about XML elements.  
(or)  
b) Explain DTD in XML.

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**MODEL QUESTION PAPER**

**Paper - VIII : Elective – II : (Cluster A) A1. Foundations of Data Science**

**Time : 3 Hours**

**Max.Marks : 75**

**SECTION - A**

Answer any **FIVE** of the following questions.

**5 x 5 M = 25 M**

1. What is sampling for modelling and validation?
2. Explain evaluating clustering model.
3. What is linear regression.
4. Write about k-means algorithm.
5. What is Knitr?
6. What are matrix plots?
7. What is poisson distribution?
8. Write about Lists in 'R' language.

**SECTION - B**

Answer **ALL** the following questions.

**5 x 10 M = 50 M**

9. a) What is Data Science? Explain its roles and stages in Data Science.  
(or)  
b) Explain different properties and characteristics of Relational Databases.
10. a) What is Machine Learning? What is its role in Data Science?  
(or)  
b) What is Cluster Analysis? Explain K-means algorithm.
11. a) Explain the characteristics of 'R' language? How do we read data into 'R'?  
(or)  
b) Explain Arrays and Matrices in 'R' language.
12. a) Briefly explain Binomial Distribution.  
(or)  
b) What is normal distribution? Explain its representation in 'R' language with an example.
13. a) Explain plot() function in 'R' language.  
(or)  
b) Explain about Graph Exploration in 'R' language.

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**MODEL QUESTION PAPER**

**Paper - VIII : Elective – II : (Cluster A) A2. BIG DATA TECHNOLOGY**

**Time : 3 Hours**

**Max.Marks : 75**

**SECTION - A**

Answer any **FIVE** of the following questions.

**5 x 5 M = 25 M**

1. Write the importance of Big Data.
2. Write some applications of Map Reduce.
3. What is Data Serialization?
4. Write about inputs and outputs of Map Reduce.
5. What is HDFS?
6. Write about Map Reduce Paradigm.
7. Write about joins in HiveQL
8. Write about Zookeeper.

**SECTION - B**

Answer **ALL** the following questions.

**5 x 10 M = 50 M**

9. a) What is distributed file system? Explain the significance of four V's in Big Data.  
(or)  
b) Explain briefly about Big Data applications.
10. a) What is Big Data? Explain the characteristics of APACHE Hadoop.  
(or)  
b) Explain how do we move data in and out of Hadoop.
11. a) Explain Hadoop architecture.  
(or)  
b) Explain Hadoop shell commands.
12. a) Explain Hive architecture and installation.  
(or)  
b) Compare Traditional data file with Hive.
13. a) Explain the concepts of HBase and write its uses.  
(or)  
b) Explain how a schema design is done in HBase.

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**MODEL QUESTION PAPER**

**Paper - VIII : Elective – II : (Cluster B) B1. DISTRIBUTED SYSTEMS**

**Time : 3 Hours**

**Max.Marks : 75**

**SECTION – A**

Answer any **FIVE** of the following questions.

**5 x 5 M = 25 M**

1. What is a Distributed Computing System? Write its characteristics.
2. Write about various features of a message passing system.
3. Explain Synchronization.
4. What is Distributed Shared Memory(DSM)? Write the advantages of DSM.
5. Explain about Deadlock.
6. Write about the features of Process Migration.
7. Write about File Models.
8. Write about Authentication.

**SECTION - B**

Answer **ALL** the following questions.

**5 x 10 M = 50 M**

9. a) Write about various Distributed Computing System Models.  
(or)  
b) Describe issues in designing a Distributed Operating System.
10. a) Explain RPC implementation mechanism.  
(or)  
b) Write about Communication Protocols.
11. a) Explain about Event Ordering in Distributed Systems.  
(or)  
b) Write about Election Algorithm.
12. a) Explain about Thread in Distributed System.  
(or)  
b) Write about Load Balancing Approach.
13. a) Write about Cryptography. Write about Benefits and Drawbacks of Cryptography.  
(or)  
b) Write about Access control and Digital Signatures.

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**MODEL QUESTION PAPER**

**Paper - VIII : Elective – II : (Cluster B) B2. CLOUD COMPUTING**

**Time : 3 Hours**

**Max.Marks : 75**

**SECTION - A**

Answer any **FIVE** of the following questions.

**5 x 5 M = 25 M**

1. Explain the design of Cloud Computing.
2. What are the regularity issues?
3. Explain Security Concerns in Cloud.
4. Explain the Cloud Computing Architecture.
5. Write about various PaaS providers.
6. What is IaaS? List various IaaS providers.
7. What is virtualization? What is the need for virtualization?
8. Write about thin client.

**SECTION - B**

Answer **ALL** the following questions.

**5 x 10 M = 50 M**

9. a) What is Cloud Computing? Explain the components of Cloud Computing.  
(or)  
b) Explain various characteristics of Cloud Computing.
10. a) Explain various Cloud scenarios.  
(or)  
b) What are the benefits and limitations of Cloud scenerios?
11. a) Explain about SPI frames work.  
(or)  
b) Write a note on about the following SaaS providers  
i) Google App Engine    ii) Salesforce.com
12. a) Explain various Cloud deployment models.  
(or)  
b) What are the advantages and disadvantages of Cloud Computing?
13. a) Explain about Full and Para Virtualization.  
(or)  
b) Explain the architecture of Hyper-V.

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