S–6322

Sub. Code
23MCI1C1

M.Sc. DEGREE EXAMINATION, APRIL 2025

First Semester

Computer Science and Information Technology

DATA STRUCTURES AND ALGORITHMS

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define Linear Data structure.
2. Given an Example of Insertion.
3. What is Stack?
4. What is Doubly Linked list?
5. What is purpose of Traversing Binary Trees?
6. Define Shortest path.
7. Define divide and conquer.
8. Given an Example of Bubble sort.
9. What is pseudo code?
10. What is meant by Big oh notation?

Part B

$(5 \times 5 = 25)$

Answer **all** the questions, choosing either (a) or (b).

11. (a) Explain the implementation of a list with example.

Or

(b) Discuss the Traversal of a list.

12. (a) Convert the given a+b*c–d/e*f infix Expression into postfix and prefix.

Or

(b) Write short notes on

(i) Circular queues

(ii) Linked List.

13. (a) Explain the Binary search tree.

Or

(b) Discuss the Traversal-shortest path.

14. (a) Illustrate the Insertion sort with one Example.

Or

(b) Explain the Tree sort with example.

15. (a) Explain the performance analysis.

Or

(b) Discuss the Theta notation with example.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Explain the searching and retrieving an element with example.

17. What is stack and explain the operation in stack with example.

18. Explain the Binary and Trees Representation with example.

19. Demonstrate the Selection sort with Suitable Example.

20. Analyze the Time complexity with example.

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S–6323	Sub. Code
	23MCI1C2

M.Sc. DEGREE EXAMINATION, APRIL 2025

First Semester

Computer Science and Information Technology

ADVANCED JAVA PROGRAMMING

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define a class.
2. What is meant by string handling?
3. What is purpose of array list?
4. Given a example of throw.
5. What is java database connectivity?
6. Define TCP/IP.
7. What is meant by java servers?
8. Define Servlet life cycle.
9. What are Lambda Expressions.
10. What is the purpose of functional interface?

Part B (5 × 5 = 25)

Answer **all** the questions, choosing either (a) or (b).

11. (a) Explain Bitwise Operators in java with the example of a=5 and b=7.

Or

(b) Distinguish between nested class and inner class in java (Any six points).

12. (a) Evaluate the java Generics using map concept using suitable Program.

Or

(b) Differentiate the following keywords Throw, Throws and Finally.

13. (a) List out the popular interface involved in JDBC API.

Or

(b) Explain the Methods involved in Prepared Statement interface.

14. (a) Prioritize the advantages of Spring Framework.

Or

(b) Describe the servlet life cycle.

15. (a) What are the different operations involved on stream?

Or

(b) Interpret the Java lambda expression with the appropriate syntax.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Construct the example program to show the Thread States.

17. Explain the types of Runtime Exception using suitable example.

18. Discuss the step involved to have the JDBC Connection.

19. Elaborate the working of JSP and Servlet with suitable Example.

20. Discuss the Lambda Expressions with its methods.

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S–6326	Sub. Code 23MCI1E2

M.Sc. DEGREE EXAMINATION, APRIL 2025

First Semester

Computer Science and Information Technology

Elective – WIRELESS SENSOR NETWORKS

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define Wireless sensor networks.

2. List out any three applications of Wireless sensor networks.

3. What is Mac protocol?

4. Recall about physical layer.

5. What is Link Management?

6. Tell about laterization problem

7. What is data centric storage?

8. What is flow control?

9. Expand UDP and TCP.

10. What is Destination port address?

Part B (5 × 5 = 25)

Answer **all** the questions, choosing either (a) or (b).

11. (a) List out the challenges involved in the wireless sensor networks.

Or

(b) Explain the Single Node Architecture.

12. (a) Interpret the concept of gateways with one real time example.

Or

(b) Summarize the concept of Wireless Channels.

13. (a) Distinguish between single hop and Multiple hop.

Or

(b) Elaborate about Framing in Data Link layer.

14. (a) Discuss about MANET Protocols.

Or

(b) Differentiate between Data Aggregation and Data Centric Storage.

15. (a) Discuss about QoS in Wireless Sensor Networks.

Or

(b) What is Congestion Control, Elaborate the Working with its architecture?

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Elaborate any two real time wireless application withs its challenges and constraints.

17. Elaborate the Classification of Mac Protocol Categories.

18. Discuss about Content based and Geographic addressing.

19. Describe the Gossiping and agent based unicast forwarding.

20. Discuss about the Zigbee Security with suitable Example.

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S–6328

Sub. Code
23MCI2C1

M.Sc. DEGREE EXAMINATION, APRIL 2025

Second Semester

Computer Science and Information Technology

ADVANCED DATABASE MANAGEMENT SYSTEMS

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. List out any five relationship types.

2. What are the three components of the ER diagram?

3. Define distributed data storage.

4. List out any five complex data types.

5. Define spatial data model.

6. Why we need predicate calculus?

7. What are the benefits of XML?

8. What is XML hierarchical data?

9. Define unpacking relations.

10. What are multimedia sources?

Part B (5 × 5 = 25)

Answer **all** questions choosing either (a) or (b).

11. (a) Elaborate the Concept of DBMS Architecture.

Or

(b) Consider the following functional dependencies in a database:

Data_of_Birth → Age

Age → Eligibility

Name → Roll_number

Roll_number → Name

Course_number → Course_name

Course_number → Instructor

(Roll_number, Course_number) → Grade

The relation (Roll_number, Name, Date_of_birth, Age) is:

(A) In second normal form but not in third normal form

(B) In third normal form but not in BCNF

(C) In BCNF

(D) In 1NF

12. (a) Differentiate the object oriented versus object Relational.

Or

(b) Explain the concept of Distributed transactions.

13. (a) What is spatial data and list out the characteristics of Spatial Database.

Or

(b) Elaborate the concept of Event-Condition-Action (ECA) rules in Deductive systems.

14. (a) Describe the difference DTD and the XML Schema.

Or

(b) Is it easier to process XML than HTML.

15. (a) Discuss about Packing and Unpacking Relations.

Or

(b) Define the Following terms of Multimedia

(i) Media data

(ii) Media format data

(iii) Media Keyword data.

Part C $(3 \times 10 = 30)$

Answer any **three** questions.

16. Develop an ER diagram for keeping track of information about a company database taking into account at least five entities.

17. Briefly discuss on the two-phase locking protocol used in concurrency control. How does it guarantee serializability.

18. Explain the phases involved in Query Evaluation for Deductive Database.

19. Describe the Components of XML Documents.

20. Describe the Multimedia Database with real time application.

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S–6329

Sub. Code
23MCI2C2

M.Sc. DEGREE EXAMINATION, APRIL 2025

Second Semester

Computer Science and Information Technology

OPEN-SOURCE TECHNOLOGIES

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is the need of open source?

2. Define Kernel mode.

3. Write a syntax of PHP.

4. Define file Access.

5. How to Sort a MYSQL query result?

6. Given any three queries of MYSQL.

7. Define classes.

8. Difference between the Error and Exceptions.

9. Define Apache Web Server.

10. Write a Step of Eclipse IDE platform.

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) List out the Advantages of the Open-Source Software.

Or

(b) Explain about cloning and backup of the Linux system.

12. (a) Discuss the concept of operators in PHP with suitable Example.

Or

(b) Explain about String Manipulation in PHP with Suitable Example.

13. (a) Elaborate the Concept of Starting and terminating MYSQL.

Or

(b) Explain about the Post installation steps of MYSQL.

14. (a) Explain the errors and exceptions that involved in the python.

Or

(b) Differentiate between the List and Tuple with snippet Program.

15. (a) Elaborate Concept of Apache Web Server.

Or

(b) Discuss about the web server configuration using Apache web server.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Elaborate the Concept of Linux signals.

17. Write a PHP Program to insert and retrieve data from database.

18. Describe the Data and Time Functions in MYSQL with an Example.

19. Explain function and module with suitable example.

20. Discuss about the Case study of E-Governance - Government Policy toward Open Source

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S–6330

Sub. Code
23MCI2C3

M.Sc. DEGREE EXAMINATION, APRIL 2025

Second Semester

Computer Science and Information Technology

COMPILER DESIGN

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What are Compilers?

2. Define Constants.

3. What are the symbol table?

4. List out role of Parser.

5. What is Translator?

6. Define S-attributed.

7. Define Storage Organization.

8. Write a program of Boolean expressions?

9. Write down Code generator?

10. What is Loops In flow graph?

Part B

$(5 \times 5 = 25)$

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain the working of different phases of a compiler. Illustrate with a source language statement.

Or

(b) What is the relevance of input buffering in lexical analysis?

12. (a) Explain bottom-up evaluation of s-attributed definitions.

Or

(b) Construct the SLR table for the grammar :
S -> aSbS | a.

13. (a) Explain about the L-attributed definitions and S-attributed definitions in a syntax directed translation scheme?

Or

(b) Explain the specification of a simple type checker.

14. (a) What is static allocation strategy? What are its limitations?

Or

(b) Elaborate the concept Boolean Expressions.

15. (a) Elaborate the concepts of Loops in flow graphs.

Or

(b) Explain the concepts of Code Optimization.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Explain the role of Lexical Analyzer with suitable Example.

17. Evaluate the expression 3*5+4n using the above SDD both in bottom up and top-down approach.

18. Elaborate the concept of Translator using simple Expression.

19. Explain storage organization and storage allocation strategies.

20. Explain different code optimization techniques available in local and global optimizations?

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S–6331

Sub. Code
23MCI2E1

M.Sc. DEGREE EXAMINATION, APRIL 2025

Second Semester

Computer Science and Information Technology

Elective – SOFTWARE TESTING

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is software testing?
2. What are the different types of testing?
3. Define Quality assurance.
4. What is prototyping?
5. Define static testing.
6. What is scenario testing?
7. Define test plans.
8. What is web service?
9. What is test management?
10. Define process.

Part B (5 × 5 = 25)

Answer **all** questions choosing either (a) or (b).

11. (a) Explain the goals of software testing.

Or

(b) Explain in detail about coverage criterion.

12. (a) Describe about verification and validation.

Or

(b) Explain about Spiral model.

13. (a) Discuss in detail about Bottom up integration.

Or

(b) Explain about Performance testing.

14. (a) Describe about Time software and embedded software.

Or

(b) Explain about identifying correct outputs.

15. (a) Describe in detail about role of ecosystem and call for action.

Or

(b) Explain about software test automation.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Discuss in detail about testing levels based on software activity.

17. Explain the different phases of software project.

18. Explain about (a) Structural testing (b) Static testing

19. Explain the functions of real time software and embedded software.

20. Discuss the comparison between testing and development function.

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S–6332

Sub. Code
23MCI2E2

M.Sc. DEGREE EXAMINATION, APRIL 2025

Second Semester

Computer Science and Information Technology

***Elective* – INTERNET OF THINGS**

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define IOT.
2. What is IOT Functional stack?
3. List out any five sensors.
4. What is MAC Layer?
5. List out key advantages of Internet protocol.
6. Define IP Version
7. Define transport Layer.
8. Expand MQTT.
9. Define Machine learning.
10. Define Activity monitoring.

Part B (5 × 5 = 25)

Answer **all** the questions choosing either (a) or (b).

11. (a) List out the challenges in IoT.

Or

(b) Elaborate about the Genesis of IoT.

12. (a) List out the IoT Access Technologies.

Or

(b) Elaborate about the concept of Topologies.

13. (a) Discuss about the need of Optimization.

Or

(b) Elaborate about the concepts of IP Versions.

14. (a) Discuss about the process of MQTT with neat Sketch.

Or

(b) Elaborate the Concept of Generic Web based Protocols.

15. (a) Explain the Big Data analytics Tools and technology.

Or

(b) Elaborate the importance of Data Analytics for IoT.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Elaborate about the Layers that involved in the Core IoT Functional Stack.

17. Elaborate the Concept of IEEE 802.13.4 MAC behaviour modes.

18. Discuss about the optimization IP For IoT with its Limitations.

19. Elaborate the concept of SCADA with suitable Example.

20. Elaborate the Edge streaming Analytics.

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S–6333

Sub. Code
23MCI2E3

M.Sc. DEGREE EXAMINATION, APRIL 2025

Second Semester

Computer Science and Information Technology

***Elective* – CLOUD SERVICES**

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define cloud computing.
2. Mention the advantages of cloud computing.
3. What is web service?
4. Mention the uses of cloud service development.
5. Write a note on hybrid cloud.
6. What are the security challenges in cloud computing?
7. List out any two online scheduling applications.
8. Define task management.
9. Mention the web-based communication tools.
10. Give a note on web mail services.

Part B (5 × 5 = 25)

Answer **all** questions choosing either (a) or (b).

11. (a) Give a short note on current companies in the cloud.

Or

(b) Discuss cloud storage with an example.

12. (a) Explain about platform as a service.

Or

(b) Illustrate Amazon Ec2.

13. (a) Describe about cloud computing for the community.

Or

(b) How to collaborate on schedules? Explain.

14. (a) Write a short note on collaborate on event management.

Or

(b) Elucidate collaborating on Word processing with an example.

15. (a) How to collaborate through web-based communication tools?

Or

(b) What are the various ways to collaborate online in cloud computing? Explain.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Discuss in detail cloud architecture.

17. Illustrate IBM Clouds in detail.

18. Explain in detail about centralizing email communication.

19. How to store and share the files using cloud services? Explain.

20. Describe in detail about evaluating web conference tools.

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S–6334

Sub. Code
23MCI2S1

M.Sc. DEGREE EXAMINATION, APRIL 2025

Second Semester

Computer Science and Information Technology

WEB TECHNOLOGIES

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. List out any five basic text formatting.

2. Given an Example program of HTML Headings (h1 to h6).

3. What is Form control?

4. What is the Syntax of Frameset?

5. List out CSS Rules.

6. Define page Layout CSS.

7. Define Variables.

8. Where to used Dialog Boxes?

9. What is window object?

10. Define Event handlers.

Part B (5 × 5 = 25)

Answer **all** the questions, choosing either (a) or (b).

11. (a) Differentiate between HTML and XHTML.

Or

(b) Demonstrate the Creation Links with the <a> Element.

12. (a) Explain the Nested Tables with example.

Or

(b) Elaborate the Inline or floating frames with <iframe>.

13. (a) Explain the CSS properties with example.

Or

(b) Summarize the page layout in CSS.

14. (a) Explain the Data types with example.

Or

(b) Summarize the Loop statement with example.

15. (a) List out the steps involved in writing scripts.

Or

(b) Explain the Event Handlers and its types.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Explain the Basic Text Formatting and its types.

17. Create an html page named as "simple.html"

    Set the title of the page as "simple HTML Tags"

    Within the body perform the following :

    (a) Moving text "Simple HTML Tags"

    (b) Different heading Tags (h1 to h6)

    (c) Paragraph

    (d) Horizontal Line

    (e) Line Break

    (f) Block Quote

    (g) Different Logical Style (<b>, <c>, <sub>, <sup>, <strikeout>, , <emp>)

18. Explain the controlling of text with example.

19. Explain the JavaScript conditional statements with example.

20. Explain Event handlers in Javascript with Example.

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S–6337

Sub. Code
23MCI3C3

M.Sc. DEGREE EXAMINATION, APRIL 2025

Third Semester

Computer Science and Information Technology

DISTRIBUTED OPERATING SYSTEM

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define the term distributed operating system.

2. What are the primary functions of a distributed operating system?

3. List out the communication primitives in distributed operating systems.

4. Define deadlock detection in distributed systems.

5. Name two key components of a distributed file system architecture.

6. What is shared memory in the context of distributed operating systems?

7. Differentiate between synchronous and asynchronous communication in distributed systems.

8. Define recovery and fault tolerance in distributed operating systems.

9. What are threads in context of operating systems?

10. Write the need for process synchronization in multiprocessor systems.

Part B $(5 \times 5 = 25)$

Answer **all** questions choosing either (a) or (b).

11. (a) Explain the key characteristics and benefits of distributed operating systems.

Or

(b) Describe the different types of distributed operating systems based on their structure and communication models.

12. (a) Discuss the different types of communication primitives used in distributed operating systems.

Or

(b) Explain the inherent limitations of achieving consensus in distributed operating systems.

13. (a) How shared memory is implemented and managed in distributed operating systems?

Or

(b) Describe the design considerations and challenges involved in implementing a distributed file system.

14. (a) Explain the principles and operation of a dynamic voting protocol for achieving fault tolerance.

Or

(b) Describe common fault tolerance issues in distributed operating systems and their impact on system reliability.

15. (a) Discuss the architecture and benefits of a multiprocessor operating system.

Or

(b) Describe the challenges and solutions of process synchronization in multiprocessor systems.

Part C $(3 \times 10 = 30)$

Answer any **three** questions.

16. Compare centralized, decentralized, and distributed operating systems. Discuss their advantages, disadvantages, and use cases.

17. Discuss the challenges and solutions in achieving mutual exclusion in distributed operating systems.

18. Elaborate the challenges and solutions in designing a scalable and fault-tolerant distributed file system.

19. Analyze the challenges and solutions in managing recovery in concurrent systems with multiple processes.

20. Discuss in detail the role of threads in modern operating systems, including their advantages, challenges, and implementations.

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S–6339

Sub. Code
23MCI3E2

M.Sc. DEGREE EXAMINATION, APRIL 2025

Third Semester

Computer Science and Information Technology

***Elective* – WEB SERVICES**

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What are the advantages of using a client/server model in distributed systems?

2. What are the primary components required to implement Java RMI?

3. Name two common security mechanisms used in securing web services.

4. Why is good API design crucial for web services?

5. Define service composition in the context of SOA.

6. Define SOA governance.

7. How does WSDL specify reliability requirements for a web service?

8. What does the <message> element describe in a WSDL document?

9. Name the techniques used for service discovery in distributed systems.

10. Define UDDI.

Part B (5 × 5 =25)

Answer **all** questions choosing either (a) or (b).

11. (a) Discuss in detail the challenges related to fault tolerance and resilience in distributed systems.

Or

(b) Explore the role of Message-Oriented Middleware in supporting asynchronous communication and reliable message delivery in distributed systems.

12. (a) Discuss how XML facilitates data exchange between web service providers and consumers, ensuring interoperability and data integrity.

Or

(b) Compare and contrast SOAP-based web services with RESTful web services.

13. (a) Compare Document Type Definitions and XML Schema for defining the structure of XML documents.

Or

(b) Compare and contrast SOA with monolithic architectures.

14. (a) What role does dynamic binding play in interacting with WSDL-defined services?

Or

(b) Define non-functional requirements in the context of service descriptions.

15. (a) Define a service registry. What are its primary functions within an SOA environment?

Or

(b) Discuss the importance of service discovery in SOA.

Part C $(3 \times 10 = 30)$

Answer any **three** questions.

16. Illustrate the architecture and components of CORBA in detail.

17. Analyze the significance of WSDL in web service architecture.

18. Describe the basic structure of an XML document with example.

19. Describe semantic annotations in the context of WSDL in detail.

20. Describe the UDDI data model and its key elements.

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S–6340

Sub. Code
23MCI3E3

M.Sc. DEGREE EXAMINATION, APRIL 2025

Third Semester

Computer Science and Information Technology

***Elective* – DIGITAL IMAGE PROCESSING**

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A $(10 \times 2 = 20)$

Answer **all** questions.

1. What is Acquisition storage?
2. Define Pixel.
3. What is Image averaging?
4. What is high pass filter?
5. What is restoration?
6. What is spatial domain?
7. What is redundancy?
8. Define lossy compression.
9. What is perception criterion function?
10. Define Bayes classifier.

Part B (5 × 5 = 25)

Answer **all** questions choosing either (a) or (b).

11. (a) Discuss about Walsh transformation.

Or

(b) Describe the importance basic image transformation.

12. (a) Explain about image subtraction.

Or

(b) Briefly discuss about Homomorphic filtering.

13. (a) Discuss about degradation models.

Or

(b) Explain about Interactive restoration.

14. (a) Discuss about fidelity criteria in detail.

Or

(b) Explain the functions of lossless compression.

15. (a) Discuss about perception criterion function.

Or

(b) Explain about relaxation algorithm in detail.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Discuss about the elements of digital image processing.

17. Explain in detail about smoothing and sharpening filters.

18. Discuss in detail about algebraic approach to restoration.

19. Explain about image compression standards.

20. Discuss briefly about syntactic pattern recognition.

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S–6342

Sub. Code
23MCI4C1

M.Sc. DEGREE EXAMINATION, APRIL 2025

Fourth Semester

Computer Science and Information Technology

SOFT COMPUTING

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define soft computing.
2. List out the characteristics of soft computing.
3. What is linear separability?
4. Give a note on neural network.
5. Mention the applications of artificial neural network.
6. Define Hopfield network.
7. Differentiate adaline and madaline networks.
8. What is supervised learning?
9. Write a note on mutation.
10. Mention any two genetic operators.

Part B (5 × 5 = 25)

Answer **all** questions choosing either (a) or (b).

11. (a) Write a short note on fuzzy parametrization.

Or

(b) Discuss membership functions in fuzzy relations.

12. (a) Write down the fundamental models of artificial neural network.

Or

(b) Explain Hebb network model.

13. (a) Illustrate Associative memory network.

Or

(b) Give a short note on ART network.

14. (a) Describe about Fuzzy inference and its expert system.

Or

(b) Discuss Fuzzy reasoning with an example.

15. (a) Mention the classification of genetic algorithm.

Or

(b) Give a note on cross over with an example.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Explain in detail about fuzzification methods.

17. Discuss Mcculloch pits model in detail.

18. Elucidate Radial Basis Function Network.

19. Write a detailed note on Fuzzy logic control system.

20. Illustrate inversion and deletion in genetic operators.

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S–6343

Sub. Code
23MCI4C2

M.Sc. DEGREE EXAMINATION, APRIL 2025

Fourth Semester

Computer Science and Information Technology

MOBILE COMMUNICATIONS

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Write the difference between mobile wireless devices.

2. Define the term 'multiplexing' in mobile communication.

3. What does GSM stand for in mobile communication?

4. Name two key components of the GSM architecture.

5. What is the primary purpose of IEEE 802.11 in wireless communication?

6. Define Mobile IP.

7. Write the primary function of the mobile transport layer in communication networks.

8. What is TCP snooping?

9. What is mobility support in mobile communication?

10. Define the term "file systems" in the context of mobile devices.

Part B

$(5 \times 5 = 25)$

Answer **all** questions choosing either (a) or (b).

11. (a) Explain the key characteristics that distinguish mobile devices from wireless devices.

Or

(b) Describe the components and layers of the Simplified Reference Model used in mobile communication.

12. (a) Discuss the role of sessions in mobile communication protocols.

Or

(b) Compare and contrast DECT and GSM technologies.

13. (a) Explain the key features of the IEEE 802.11 standard.

Or

(b) How does Mobile IP facilitate mobility in networks?

14. (a) Why is mobility management important in mobile communication?

Or

(b) How does TCP snooping improve TCP performance over wireless networks?

15. (a) Compare WWW and WAP in terms of their architectures and functionalities.

Or

(b) Describe the layers of WAP architecture and their roles in mobile communication.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Discuss the evolution and significance of mobile and wireless devices in modern communication. Include examples of different device types and their applications.

17. Explain the detailed architecture of the GSM network, including the roles of its main components such as the Mobile Station (MS), Base Station Subsystem (BSS), and Network and Switching Subsystem (NSS).

18. Elaborate the architecture and components of IEEE 802.11 Wireless LANs, including the roles of Access Points (APs) and client devices.

19. Evaluate the mechanisms and protocols used to manage mobility in mobile communication networks.

20. Discuss the evolution and functionalities of WAP, focusing on its architecture, protocols (WDP, WTLS, WTP), and applications. Provide examples of how WAP enhances mobile web browsing and communication.

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S–6344

Sub. Code
23MCI4C3

M.Sc. DEGREE EXAMINATION, APRIL 2025

Fourth Semester

Computer Science and Information Technology

BIG DATA ANALYTICS

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What are some common challenges faced in big data analysis?

2. How do big data and data analytics differ?

3. What are the different Hadoop configuration files?

4. What are the three modes in which Hadoop can run?

5. What is classification?

6. Define Kernel.

7. What are data streams?

8. Define data model.

9. Define Pig latin.

10. Define NoSQL.

Part B (5 × 5 = 25)

Answer **all** questions choosing either (a) or (b).

11. (a) Explain the risks of big data.

Or

(b) Describe about the evolution of analytic processes.

12. (a) Explain about distributed file system.

Or

(b) Describe about shuffling in Map Reduce?

13. (a) Explain about cluster analysis in detail.

Or

(b) Discuss about grid based methods and its uses in data analysis.

14. (a) Describe about sampling data in a stream for mining data streams.

Or

(b) Explain in detail about stock market predictions in data streams.

15. (a) Discuss about pig data model.

Or

(b) Explain about data models and implementations in detail.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Discuss about the structure of big data and its uses.

17. Explain the architecture of HDFS.

18. Explain about regression modeling in statistical methods.

19. Describe about real time analytics platform (RTAP) in detail.

20. Explain in detail about Cassandra and its clients in big data framework.

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