D–7542

Sub. Code
31311

DISTANCE EDUCATION

M.Sc. DEGREE EXAMINATION, DECEMBER 2022.

First Semester

Information Technology

COMPUTER ORGANIZATION AND ARCHITECTURE

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. What are Logic Gates?
2. Why do we need Multiplexer?
3. Define Data type.
4. Convert the decimal 41.6 into binary.
5. Define Control word.
6. Write the purpose of parallel adder.
7. What do you mean by Array Multiplier?
8. What is an interrupt?
9. What is virtual Memory?
10. Define microprogrammed control.

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

11. (a) Classify various types of flip flops.

Or

(b) Explain the functions of Decoders.

12. (a) What are the features of register transfer language?

Or

(b) Explain the concept of shift Micro-operation.

13. (a) Write short notes on Instruction cycle.

Or

(b) What are the components of I/O interface? Explain.

14. (a) Write the steps involved in Booth Multiplication Algorithm.

Or

(b) Compare Isolated versus Memory Mapped I/O.

15. (a) Write short notes on Associative Memory.

Or

(b) Explain the features of Auxiliary Memory.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Explain in detail about complements and its types with examples.

17. Illustrate Bus and Memory Reference Instructions.

18. Discuss the various addressing modes in Architecture.

19. Elucidate the features of Direct Memory Access.

20. Why we need cache Memory? Explain its features in detail.

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DISTANCE EDUCATION

M.Sc. (IT) DEGREE EXAMINATION, DECEMBER 2022.

First Semester

Information Technology

OBJECT ORIENTED PROGRAMMING AND JAVA

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL the questions.

1. Specify any two features of Java.
2. Point out the function of concatenation operator.
3. Differentiate constructor and method of class.
4. How to define the interface?
5. Define enumerated type.
6. How to create thread? Specify.
7. What is Exception Handling?
8. State the difference between Applets and Applications.
9. Define file class.
10. What is meant by interactive I/O?

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

11. (a) Illustrate about working of Java Virtual Machine.

Or

(b) Develop a simple Java program to sort the given numbers in increasing order.

12. (a) Summarize the usage of constructor with an example using Java.

Or

(b) Explain the significance of arrays in Java.

13. (a) Discuss about stopping and blocking of a thread.

Or

(b) Write a Java application that executes two threads. One thread displays "Good Morning" in every 500 milliseconds and another thread displays "Good Afternoon" in every 750 milliseconds. Create the threads by implementing the runnable interface.

14. (a) Describe about multiple catch statements.

Or

(b) Explain various methods called during execution cycle of the applet.

15. (a) Write notes on byte stream class.

Or

(b) Explain I/O file handling in Java.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Explain the role of control flow statements in Java with suitable examples.

17. Illustrate about multiple inheritance with suitable examples.

18. Write a Java program for dynamically changing the font and size of Text using Multithreading.

19. Write an applet that draws four horizontal bars of equal size and of different colors such that they cover up the whole applet area. The applet should operate correctly even if it is resized.

20. Describe how to access records randomly in a file with suitable example.

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DISTANCE EDUCATION

M.Sc. DEGREE EXAMINATION, DECEMBER 2022.

First Semester

Information Technology

DATA STRUCTURES AND ALGORITHMS

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. What are the uses of data structure?

2. Write any four characteristics of array.

3. Covert A*B+C/D into post and prefix form.

4. Define circular queue.

5. What is the purpose of non linear data structures?

6. What is spanning tree?

7. What is linear search?

8. What are the advantages of binary search?

9. Which is the best algorithm for sorting?

10. What is called unstable sorting?

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

11. (a) Explain the time complexity of algorithm.

Or

(b) Distinguish between linear and non-linear data structure.

12. (a) Explain operations of stack with algorithms.

Or

(b) Write short notes on merging list.

13. (a) Explain the Tree data structure and its applications.

Or

(b) What is the use of hashing in data structure?

14. (a) Describe the space complexity of searching algorithms.

Or

(b) Differentiate binary search and linear search algorithms.

15. (a) How bubble sort works? Explain.

Or

(b) Write short notes on insertion sort.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. What is an Array? How arrays are represented and manipulated? Explain.

17. What are the operations performed on linked list? Describe.

18. Explain binary tree traversal with suitable algorithm.

19. Illustrate the working of linear search algorithm.

20. How to sort numbers using quick sort? Explain with example.

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DISTANCE EDUCATION

M.Sc. DEGREE EXAMINATION, DECEMBER 2022.

Second Semester

Information Technology

DATA MINING AND WAREHOUSING

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL the questions.

1. What are the operations of OLAP?

2. Define data cleaning.

3. What is Association rule?

4. State Pincher search algorithm

5. Specify the use of CACTUS.

6. List the characteristics of Neural Networks.

7. What is web content mining?

8. Define temporal mining.

9. Differentiate traditional data and big data.

10. State about Hadoop Ecosystem.

PART B — (5 × 5 = 25 marks)

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

11. (a) Explain the different forms of knowledge.

Or

(b) Discuss about data Reduction and Enrichment.

12. (a) Explain the Apriori algorithm in Data Mining.

Or

(b) Describe about Classification by Back Propagation.

13. (a) Write a note on Hierarchical clustering Algorithm.

Or

(b) Elucidate the concept of Genetic Algorithm.

14. (a) Illustrate the role of spatial mining.

Or

(b) What are the features of WEKA tool? Explain.

15. (a) Discuss about types of Big Data.

Or

(b) Write notes on components of Hadoop.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. What are the various Data mining Techniques? Explain.

17. Discuss about Bayesian classification algorithm.

18. What is Machine Learning? Explain the machine learning algorithms.

19. Write a note on Web structure mining.

20. Describe about physical architecture of Hadoop.

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DISTANCE EDUCATION

M.Sc. DEGREE EXAMINATION, DECEMBER 2022.

Second Semester

Information Technology

RELATIONAL DATABASE MANAGEMENT SYSTEMS
(RDBMS)

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Define data abstraction.

2. What is semantic data model?

3. What is integrity constraint?

4. Define join operation.

5. Write the basic form of an SQL query.

6. List any four set operations in SQL.

7. Distinguish between serial schedule and serializable schedule.

8. What is lock-based protocol?

9. What is meant by cluster index?

10. Write the syntax for inserting a single row in a table.

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

11. (a) What is schema? Explain physical schema.

Or

(b) Explain Transaction Management in detail.

12. (a) How do you specify key constraint in SQL with suitable code?

Or

(b) Define view. How do you update views with suitable example?

13. (a) Discuss correlated subquery with suitable example.

Or

(b) Describe any five aggregate operators in SQL.

14. (a) Explain the use of timestamp based protocols DBMS.

Or

(b) What is advance recovery system? Describe.

15. (a) What are the file organizations? Explain.

Or

(b) Write short notes on B+ tree.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Explain the structure of DBMS with neat structure.

17. Explain briefly about domain relational calculus with suitable queries.

18. What is Decomposition? Explain the problems caused by decomposition.

19. Write short note on the following.

    (a) Buffer management

    (b) Remote backup system.

20. Explain the following.

    (a) Primary and Secondary indexes.

    (b) Non volatile storage.

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DISTANCE EDUCATION

M.Sc. DEGREE EXAMINATION, DECEMBER 2022.

Second Semester

Information Technology

VISUAL PROGRAMMING WITH .NET

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. What is the meaning of "context sensitivity"?

2. Distinguish between docking and floating windows.

3. Write any four primitive data types.

4. How ternary operator is used in c#?

5. How do you declare an array in VB.Net?

6. Define generics.

7. What are the uses of "call hierarchy window"?

8. Write the advantages of breakpoints.

9. Define grid layout.

10. What is WrapPanel layout?

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

11. (a) Explain the menu bar and status bar in Visual Studio IDE.

Or

(b) Discuss about solution explorer.

12. (a) How to create a class and objects in c#? Explain with suitable example.

Or

(b) What are book marks? Explain any five bookmark shortcut keys and their meaning.

13. (a) How events are declared in VB.Net? Explain with suitable example.

Or

(b) What are delegates? How it is used in c#? Illustrate.

14. (a) Discuss any five options from the context menu.

Or

(b) What are the features of watch window? Explain.

15. (a) Discuss the combined box properties for data binding.

Or

(b) Write short notes on "silver light applications".

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Why Visual Studio is all about developer productivity? Explain.

17. What is branching statement? Discuss the two primary types in C# with suitable program.

18. What is interface? How it is implemented in VB.Net? Explain with suitable code.

19. Define "Stepping through code." And explain any five step operations.

20. How to configure a combo box? Explain with suitable program.

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DISTANCE EDUCATION

M.Sc. DEGREE EXAMINATION, DECEMBER 2022.

Third Semester

Information Technology

OPEN SOURCE SOFTWARE

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. What is open source operating System?
2. Define Signals in Linux.
3. Write the String manipulation functions in MYSQL.
4. How you create sequence in MYSQL?
5. Write the syntax to declare array in PHP with an example?
6. What is PHP statement?
7. What are Numbers in python?
8. How you print multiplication table in python?
9. List the features of subroutine in Perl.
10. What is a Perl File? How to create?

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

11. (a) Discuss the applications of open sources.

Or

(b) Compare User mode and Kernel mode in Linux.

12. (a) How you start and terminate your account in SQL Programs?

Or

(b) Discuss the features of MYSQL and WEB.

13. (a) Explain the control statements in PHP.

Or

(b) How SQL connectivity is established in PHP? Explain.

14. (a) Write short note on classes in python.

Or

(b) How do you manage strings in python?

15. (a) Explain the Data manipulation in Perl.

Or

(b) Describe various statements used in Perl.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. What is a process? How do you manage the process in Linux? Illustrate.

17. (a) How queries used to sort the results?

(b) What is metadata? How do you work with metadata?

18. How to send and receive mail in PHP? Explain with example code.

19. Discuss in detail about errors and exceptions in python.

20. Explain the features of packages in Perl.

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DISTANCE EDUCATION

M.Sc. DEGREE EXAMINATION, DECEMBER 2022.

Third Semester

Information Technology

OPERATING SYSTEMS

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL the questions.

1. What are the objectives of operating system?

2. Define multitasking.

3. What is the use of named pipes?

4. What is the function of scheduler and write its types?

5. What is the use of semaphore?

6. What is the need of synchronization?

7. Define fragmentation.

8. What are differences between page and segment table?

9. State the objectives of file management system.

10. What is the use of B-tree?

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

11. (a) Write short notes on services of operating system.

Or

(b) What are system calls? Explain.

12. (a) How to create and terminate a process?

Or

(b) Write short note on multiple processor scheduling.

13. (a) What is critical section problem? Explain with example.

Or

(b) What are differences between semaphore and monitors?

14. (a) Write short notes on types of memory allocation.

Or

(b) Write short notes on swapping.

15. (a) What is mounting and un-mounting of file system?

Or

(b) What are the different types of disk scheduling in OS?

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. What are the types of operating system? Explain any one.

17. Explain the following:

    (a) Inter Process Communication.

    (b) Round Robin Scheduling Algorithm.

18. What is deadlock? How to prevent and avoid deadlocks? Explain.

19. How Segmentation is implemented in OS? Explain any one method.

20. Explain Free Space Management in Operating System.

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DISTANCE EDUCATION

M.Sc. DEGREE EXAMINATION, DECEMBER 2022.

Third Semester

Information Technology

COMPUTER NETWORKS

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL the questions.

1. Define computer networks.
2. What is meant by network topology?
3. Define the role of hamming distance.
4. What is ARQ protocol?
5. Differentiate routing and flooding.
6. What is congestion in computer network?
7. Point out two transport layer protocols.
8. What is meant by RPC?
9. Specify about Cryptonalysis.
10. What are the security services?

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

11. (a) Elucidate about categories of computer networks.

Or

(b) What are Transmission Media? Explain.

12. (a) Explain about design of Go-back-n ARQ architecture.

Or

(b) Write notes on CSMA/CD multiple access protocol.

13. (a) Compare Virtual Circuits and Datagram subnets.

Or

(b) Explain about link state routing.

14. (a) Illustrate about Process-to-Process delivery.

Or

(b) Write short notes on WWW and HTTP.

15. (a) What are Cryptographic principles? Explain.

Or

(b) What are the challenges and issues in network security? Explain.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Elucidate about ISO-OSI reference network model with neat diagram.

17. What is ALOHA? Discuss its importance.

18. Describe about Circuit Switching, Packet Switching and Message Switching with suitable diagrams.

19. Explain the role and significance of Domain Name System in Computer Networks.

20. Describe the working of AES algorithm.

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DISTANCE EDUCATION

M.Sc. (IT) DEGREE EXAMINATION, DECEMBER 2022.

Fourth Semester

Information Technology

WEB TECHNOLOGY

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. What are Web Servers?
2. What are the two major protocols for accessing email from servers?
3. What is the use of HTTP protocol?
4. Define URI.
5. What is HTML?
6. Define cookie.
7. Expand the following:

   (a) HTTP, (b) URL (c) SQL
8. What is meant by WSDL?
9. Define protocol.
10. Define WWW.

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

11. (a) Explain various control and looping structure of VB script.

Or

(b) What is IIS? Explain different features of IIS.

12. (a) Discuss about the various types of ASP.NET Applications.

Or

(b) What are the basic concepts of Error Handling? Explain.

13. (a) Difference between ADO.NET and ASP.NET.

Or

(b) Briefly Explain about the Accessibility and Scope in ASP.NET.

14. (a) What is the purpose of WSDL and SOAP in a web service?

Or

(b) Describe the authentications in ASP.NET.

(i) Forms authentication

(ii) Windows authentication

15. (a) Explain the steps of creating master page in web development.

Or

(b) Discuss in detail Authentication and Security.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. What is an assembly? What are the different types of assemblies? Explain them in detail.

17. How many types of Validation Controls are provided by ASP NET?

18. Explain ADO.NET Architecture in detail. What are the ADO.NET Components?

19. Explain Web Service Architecture in detail.

20. What happens when someone accesses a Web application that uses Forms authentication?

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DISTANCE EDUCATION

M.Sc. DEGREE EXAMINATION, DECEMBER 2022.

Fourth Semester

Information Technology

SOFTWARE ENGINEERING

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. List the goals of software engineering.

2. Give two reasons why system engineers must understand the environment of a system?

3. What are the two types of software products?

4. What is the advantage of adhering to life cycle models for software?

5. What is software process? List its activities.

6. What are the various categories of software?

7. What are the merits of incremental model?

8. Characteristics of software contrast to characteristics of hardware.

9. What is requirement engineering?

10. What are the various types of traceability in software engineering?

PART B — ($5 \times 5 = 25$ marks)

Answer ALL questions, choosing either (a) or (b).

11. (a) If you have to develop a word processing software product, what process models will you choose? Justify your answer.

Or

(b) What led to the transition from product to process oriented development in software engineering?

12. (a) What are the advantages and disadvantages of iterative software development model?

Or

(b) What is System Engineering? Discuss about Software engineering paradigm in detail.

13. (a) Write any two characteristics of software as a product in detail.

Or

(b) Write the IEEE definition of Software Engineering.

14. (a) List two deficiencies in waterfall model. Which process model do you suggest to overcome each deficiency?

Or

(b) Discuss the various life cycle models in software development.

15. (a) What is the difference between information engineering and product engineering? Explain the product engineering hierarchy in detail.

Or

(b) Write note on business process engineering and product engineering.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Explain in detail the following software process models with a neat diagram.

(a) Evolutionary process model.

(b) Incremental Process model.

17. Discuss in detail the basic structure of analysis model

18. Discuss in detail about the design process in software development process.

19. What are the various testing strategies to software testing? Discuss them briefly.

20. Discuss about Risk Mitigation, Monitoring and Management.

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DISTANCE EDUCATION

M.Sc. (IT) DEGREE EXAMINATION, DECEMBER 2022.

Fourth Semester

Information Technology

CLOUD COMPUTING

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — ($10 \times 2 = 20$ marks)

Answer ALL questions.

1. Why is Cloud Computing important?

2. What are the advantages and disadvantages of Cloud Computing?

3. What are the types of Cloud service development?

4. Define the term web service with example.

5. What are the issues in web-based applications?

6. How to manage the web-based projects?

7. What is difference between collaboration on task and event management?

8. What are the features of project management applications?

9. What is Web Mail Services?

10. What is web conferencing?

PART B — ($5 \times 5 = 25$ marks)

Answer ALL questions, choosing either (a) or (b).

11. (a) Explain the security architecture design.

Or

(b) Explain in detail about evaluating on line file storage.

12. (a) Discuss about exploring online book-marking services.

Or

(b) How cloud can be used in Event Schedules and Management with an example.

13. (a) Give the various schedules in Collaborating on schedule.

Or

(b) What are the collaboration schedules in communicating across the community?

14. (a) How to explore on line scheduling and planning. Explain with example.

Or

(b) State and explain service models of cloud computing with architectures.

15. (a) List and explain various storage models of file systems and data base?

Or

(b) Explain mega store architecture with example.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Explain the system models for distributed and Cloud Computing.

17. Explain the NIST Cloud Computing reference architecture.

18. How does cloud architecture overcome the difficulties faced traditional architecture? What are the three differences that separate out cloud architecture from the tradition one?

19. Explain architectural design of compute and storage clouds.

20. Explain the cloud eco system and the architecture of P2P system.

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