D–2206	Sub. Code
	34111

DISTANCE EDUCATION

M.Sc. (Computer Science) DEGREE EXAMINATION,
DECEMBER 2023.

First Semester

DESIGN AND ANALYSIS OF ALGORITHMS

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

SECTION A — ($10 \times 2 = 20$ marks)

Answer ALL questions.

1. What are the basic characters of an algorithm?

2. Write the steps for developing a program.

3. What is the use of searching algorithms?

4. How does divide and conquer works?

5. What is greedy method?

6. How to create a spanning tree from a graph?

7. What do you mean by graph traversing?

8. What is the use of branching and bounding of algorithm?

9. Define backtracking.

10. How to represent graph in the memory?

SECTION B — (5 × 5 = 25 marks)

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

11. (a) What are the notation of an algorithm? Explain.

Or

(b) Discuss the procedure for problem solving.

12. (a) What is recursion? Explain with example.

Or

(b) What is called searching and Explain about binary search?

13. (a) Write short notes on optimal binary search tree.

Or

(b) Explain Kruskal's Algorithm.

14. (a) How to find topological sort for a graph?

Or

(b) Describe the Depth First Search technique.

15. (a) Discuss LIFO branch and bound search with example.

Or

(b) Explain the terminologies associated with graphs.

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Discuss the role of space and time complexity for developing efficient algorithms.

17. How does merge sort works using divide and conquer techniques?

18. Explain greedy method with example.

19. How to construct heap and explain its types?

20. How to solve sum of subset problem using backtracking?

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D–2207	Sub. Code
	34112

DISTANCE EDUCATION

M.Sc. (Computer Science) DEGREE EXAMINATION,
DECEMBER 2023.

First Semester

APPLIED MATHEMATICS FOR COMPUTER SCIENCE

(CBCS 2018-19 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — ($10 \times 2 = 20$ marks)

Answer ALL questions.

1. What is a proposition? Give example.

2. Define the term tautology.

3. What is conjunctive normal form?

4. What are free and bound variables?

5. Define degree of a vertex in a graph.

6. Write the applications of binary tree.

7. What is a slack variable?

8. State the optimality conditions for simplex method.

9. What do you mean by degenerate basic feasible solution of Transportation problem?

10. Give the mathematical formulation of assignment problem.

PART B — (5 × 5 = 25 marks)

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

11. (a) Construct truth table for $(p \to q) \to (p \wedge q)$.

Or

(b) Without constructing truth table prove that $\neg p \to (q \to r) \Leftrightarrow q \to (p \vee r)$.

12. (a) Show that SVR is tautologically implied by $(PVQ) \wedge (P \to R) \wedge (Q \to S)$.

Or

(b) Prove the implication $\forall x(P(x) \to Q(x))$, $\forall x(R(x) \to \neg Q(x)) \Rightarrow \forall x(R(x) \to \neg P(x))$.

13. (a) Write short notes on :

(i) Hamiltonian graph

(ii) Complete graph.

Or

(b) Explain the matrix representation of graphs with example.

14. (a) Use Graphical method to solve the following LP problem :

Maximize $Z = 15x_1 + 10x_2$

Subject to the constraints :

$4x_1 + 6x_2 \leq 360$

$3x_1 \leq 180$

$5x_2 \leq 200$ and $x_1, x_2 \geq 0$.

Or

(b) Explain the two phase method to solve linear programming problem.

15. (a) Solve the following Transportation Problem using North West corner method.

Destination

		1	2	3	4	Supply
	1	3	1	7	4	300
Source	2	2	6	5	9	400
	3	8	3	3	2	500
	Demand	250	350	400	200	

Or

(b) Describe the method to solve assignment problem.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Prove that the following implications by using truth table $p \to (q \to r) \Rightarrow (p \to q) \to (p \to r)$.

17. Obtain the principal disjunctive normal form and principal conjunctive normal form of the statement $p \to ((p \to q) \wedge \neg(\neg q \vee \neg p))$.

18. What is a spanning tree? How spanning trees are constructed? Explain any one approach with example?

19. Use simplex method to solve the following LPP :

Maximize $Z = 4x_1 + 10x_2$

Subject to the constraints :

$$2x_1 + x_2 \leq 50,$$
$$2x_1 + 5x_2 \leq 100,$$
$$2x_1 + 3x_2 \leq 90,$$
$$x_1, x_2 \geq 0.$$

20. Determine the optimum assignment schedule and cost of the following assignment problem.

	1	2	3	4	5	6
A	12	10	15	22	18	8
B	10	18	25	15	16	12
C	11	10	3	8	5	9
D	6	14	10	13	13	12
E	8	12	11	7	13	10

D–2208	Sub. Code
	34113

DISTANCE EDUCATION

M.Sc. (Computer Science) DEGREE EXAMINATION,
DECEMBER 2023.

First Semester

ADVANCED JAVA PROGRAMMING

(CBCS 2018-19 Academic Year onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Define the term Metadata.

2. What do you mean by Result set in JDBC?

3. Define URL address.

4. What do you mean by Remote Method Invocation?

5. What is the purpose of JAR files?

6. What is Persistence?

7. Define Cookies.

8. What do you mean by Servlets?

9. What is the purpose of Trees in JApplet?

10. How to Work with Graphics in AWT Classes?

PART B — (5 × 5 = 25 marks)

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

11. (a) Describe the Meta Data function with suitable illustration.

Or

(b) Write short notes on SQL Exception.

12. (a) Explain briefly about the TCP/IP Client Sockets with neat Sketch.

Or

(b) Describe the URL Connection with suitable illustration.

13. (a) Elucidate on Bean Development Kit with proper example.

Or

(b) What are the Design Patterns for Properties? Explain.

14. (a) What is a Generic Servlet? Explain.

Or

(b) Describe Servlet Parameters with suitable illustration.

15. (a) Explain the role of Buttons in JApplet.

Or

(b) Write short notes on Colors and Font.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Explain in detail about the Statement and Result Set Parameter of JDBC.

17. Elucidate with proper example the Client/Server TCP Sockets.

18. Describe the Events and Methods with suitable example.

19. Explain the Life Cycle of a Servlet with neat Sketch.

20. Describe in detail on Working with Graphics with proper illustration.

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D–2209	Sub. Code
	34121

DISTANCE EDUCATION

M.Sc. (Computer Science) DEGREE EXAMINATION,
DECEMBER 2023.

Second Semester

COMPUTER SYSTEM ARCHITECTURE

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — ($10 \times 2 = 20$ marks)

Answer ALL questions.

1. Define Latency.

2. Find the number of dies per 300 mm(30cm) wafer for a die that is 1.5 cm on a side.

3. What is loop level parallelism.

4. When hazard is created.

5. What is known as Ideal processor.

6. Expand SIMD.

7. Define Snooping.

8. When the situation occurs for Sequential Inter leaving.

9. What is RAID 4 level.

10. Tell about Transaction Processing.

PART B — ($5 \times 5 = 25$ marks)

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

11. (a) Explain the two measures of dependability which quantify the transition.

Or

(b) Illustrate Amdahl's Law.

12. (a) Explain how the loop unrolling used to improve scheduling.

Or

(b) Discuss the Implementation issues and Extension in Speculation.

13. (a) Illustrate the basic Structure of distributed memory multiprocessor.

Or

(b) Describe the Cross-cutting issues related to memory consistency.

14. (a) Analyse the Fourth optimization: pipelined cache access to increase cache bandwidth.

Or

(b) Elaborate DRAM Technology in Memory with a neat diagram.

15. (a) Explain the characteristics of Poisson Distribution of random variables.

Or

(b) Compare Block Server vs Filers.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions

16. When do we undertake summarising the performance and Explain the reasons.

17. Elaborate the Multithreading using ILP support to exploit thread - level parallelism

18. Justify the Performance measurement in multiprogramming and OS workload.

19. List out the Cross cutting issues in protection and instruction set architecture.

20. Discuss about the Internet Archive Cluster.

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D–2210	Sub. Code
	34122

DISTANCE EDUCATION

M.Sc.(Computer Science) DEGREE EXAMINATION,
DECEMBER 2023.

Second Semester

DISTRIBUTED OPERATING SYSTEMS

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. What is distributed computing system?

2. Define WAN.

3. What is buffering?

4. Define Decoding.

5. State granularity.

6. What is Thrasing?

7. Define file models.

8. What is atomic transaction?

9. Define the authentication.

10. List out the uses of digital signatures.

PART B — ($5 \times 5 = 25$ marks)

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

11. (a) Explain about the distributed operating system models.

Or

(b) Evaluate the issues in designing distributed computing system.

12. (a) Describe about the encoding and decoding.

Or

(b) Give an account on failure handling.

13. (a) Illustrate the heterogeneous DSM.

Or

(b) Describe the election algorithm.

14. (a) Analyse the distributed file system desirable features.

Or

(b) Explain the fault tolerance.

15. (a) Describe about the cryptography.

Or

(b) Discuss about the access control.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Elucidate the network types in details.

17. Summarize the Process addressing.

18. Discuss about the architecture of DSM system.

19. Explain about the file caching schemes.

20. Write notes on design principles with details.

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D–2211

Sub. Code
34123

DISTANCE EDUCATION

M.Sc. (Computer Science) DEGREE EXAMINATION,
DECEMBER 2023.

Second Semester

.NET PROGRAMMING

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Wrote shore note on CTS.

2. Define modules.

3. What is meant by sub procedures?

4. Comment on Dialog boxes.

5. Write a note on tab controls.

6. Define Exception handling.

7. List out various usage of Global asax file.

8. Mention various Data controls in ASP. NET.

9. Define data namespace.

10. What is known as a data grid?

PART B — ($5 \times 5 = 25$ marks)

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

11. (a) Write a short note on . NET garbage collection.

Or

(b) Explain about overloading in .NET.

12. (a) Explain various data types in Visual Basic. NET

Or

(b) Write a Visual Baisc .NET program to demonstrate the For loop.

13. (a) Write a note on the progress bar.

Or

(b) Explain structured exception handling.

14. (a) Write notes on custom controls.

Or

(b) Comment on the Server Utility.

15. (a) Give notes on the Data namespace.

Or

(b) Explain the data list.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Discuss about OOPS concepts.

17. Briefly explain looping statements.

18. Write a Visual Basic .NET program to demonstrate exception handling.

19. Discuss about AJAX controls.

20. Briefly explain data binding controls with an example.

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D–2212	Sub. Code
	34131

DISTANCE EDUCATION

M.Sc. (Computer Science) DEGREE EXAMINATION,
DECEMBER 2023.

Third Semester

CRYPTOGRAPHY AND NETWORK SECURITY

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

SECTION A — ($10 \times 2 = 20$ marks)

Answer ALL questions

1. Write any two challenges of computer security.

2. Define traffic padding.

3. What is called stream cipher?

4. What are the distinct functions of AES transformation?

5. What is the use public key?

6. What is an elliptic curve?

7. Define traffic analysis.

8. Expand DSS, SHA, and DSA.

9. What are the possible ways to provide Web Security?

10. What are the operations involved in PGP?

SECTION B — ($5 \times 5 = 25$ marks)

Answer ALL questions, Choosing either (a) or (b)

11. (a) Explain the OSI security architecture.

Or

(b) Draw the Simplified model of Symmetric Encryption and write the function of its components.

12. (a) Write short notes on DES design criteria.

Or

(b) Describe the concept shift rows transformation.

13. (a) Explain the basic terminologies of public key crypto system.

Or

(b) Describe the working of Elliptic Curve Cryptography.

14. (a) Write short notes on message authentication codes.

Or

(b) How does data authentication algorithm works?

15. (a) List out the parameters defined by the SSL session state.

Or

(b) Write short notes on IP security.

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. How do transposition ciphers work and explain its types with example?

17. Explain encryption and decryption process of AES block cipher technique.

18. Describe the RSA algorithm with example.

19. What are the requirements of digital signature? Explain its schemes.

20. How does PGP used for electronic mail and file storage applications? Explain.

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D–2213	Sub. Code
	34132

DISTANCE EDUCATION

M.Sc. (Computer Science) DEGREE EXAMINATION,
DECEMBER 2023.

Third Semester

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. List the components of Cloud Computing.

2. What are the benefits of Migrating to Cloud Computing?

3. How to centralize the Email communication?

4. How will the Cloud Services collaborate on To-Do Lists?

5. Define Contact Management in Cloud

6. What types of Calendars can you create with Google Calendar?

7. What is the Web-based storage available in Cloud?

8. What is VMware?

9. What do you mean by Logical Partitioning?

10. What are Virtualized Data Centers in Cloud?

PART B — ($5 \times 5 = 25$ marks)

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

11. (a) Describe in brief about the Developing Cloud Service Models with neat sketch.

Or

(b) Briefly explain the Pros and Cons of Cloud Computing.

12. (a) How will the Scheduling Collaborate takes place in Cloud Paradigm?

Or

(b) Write Short notes on Cloud Computing for Corporation.

13. (a) Elucidate the Online Calendar Applications in Cloud Computing.

Or

(b) Explain in detail about Event Management in Cloud Computing.

14. (a) What are VCloud Services? Explain.

Or

(b) Describe the Platform–as–a–Service with suitable illustration.

15. (a) Explain the working of VIO Server for Cloud.

Or

(b) Describe the Way, how Storage Virtualization works in Cloud Scenario.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Explain in detail about the Cloud Computing Service Development Tools with neat Sketch.

17. What are the various ways to Collaborating on Household budgets using Cloud? Explain in detail.

18. Describe in detail on the Word Processing and Database via Online with suitable example.

19. Explain in detail with proper illustration, the Amazon Web Services for Cloud Implementation.

20. Explain the Cloud Storage Area Networks with suitable example.

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D–2214	Sub. Code
	34133

DISTANCE EDUCATION

M.Sc. (Computer Science) DEGREE EXAMINATION,
DECEMBER 2023.

Third Semester

WEB TECHNOLOGY

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — ($10 \times 2 = 20$ marks)

Answer ALL the questions.

1. What is an URL?

2. Denote the purpose of class selectors.

3. Specify the use of functions in JavaScript.

4. Define Dynamic HTML.

5. State the hardware needed for Web Server.

6. Define name space.

7. How servlet is better than CGI?

8. State the use of Java Virtual Machine.

9. Mention about JSP.

10. Define Hyper Text Transfer Protocol.

PART B — (5 × 5 = 25 marks)

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

11. (a) Describe about Cascading Style Sheets and its benefits.

Or

(b) Write notes on significance of table tag in HTML.

12. (a) What are operators in JavaScript? Explain.

Or

(b) Discuss how to perform animations in JavaScript.

13. (a) Explain the properties of node object with examples.

Or

(b) Illustrate SAX Parser.

14. (a) Explain about single thread model.

Or

(b) Write a note on life cycle of Servlet.

15. (a) Describe about types of directives in JSP.

Or

(b) Compare JSP and Servlet technologies.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Elucidate about formatting blocks of information.

17. Discuss about arrays in Javascript.

18. Write a JavaScript program to display the grade of a student by accepting the marks of five subjects.

19. Describe about functions used for retrieving information.

20. Write a note on creating, installing and running a JSP page.

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D–2215

Sub. Code
34141

DISTANCE EDUCATION

M.Sc. (Computer Science) DEGREE EXAMINATION,
DECEMBER 2023.

Fourth Semester

DATA MINING AND WARE HOUSING

(CBCS–2018–2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — ($10 \times 2 = 20$ marks)

Answer ALL the questions.

1. Define OLAP.

2. What is meant by Decision Support System?

3. Mention pros and cons of Data Mining.

4. What is meant by data exploration?

5. Define association rule.

6. What is classification?

7. What is meant by CLARANS?

8. Define supervised machine learning.

9. What is meant by web content mining?

10. Where the text clustering used?

PART B — ($5 \times 5 = 25$ marks)

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

11. (a) Write a note on OLAP operations.

Or

(b) Write down the transformation tools in data warehouse.

12. (a) Briefly explain about knowledge and its types.

Or

(b) How the feature subset selection is performed? Explain.

13. (a) Describe about Apriori Algorithm.

Or

(b) Discuss about dynamic item set algorithm.

14. (a) Explain about CLARA.

Or

(b) Explain in detail about unsupervised machine learning algorithm.

15. (a) Short note on Temporal Data mining.

Or

(b) Write a note on Knowledge mining.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Illustrate extraction tools in data warehouse technology in detail.

17. Describe in detail about KDD process in data mining.

18. Explain about Decision Tree Classification Algorithm.

19. Exemplify Neural networks and its types.

20. Discuss in detail about web mining in detail.

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D–2216

Sub. Code
34142

DISTANCE EDUCATION

M.Sc. (Computer Science) DEGREE EXAMINATION,
DECEMBER 2023.

Fourth Semester

MOBILE APPLICATION DEVELOPMENT

(CBCS–2018–2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — ($10 \times 2 = 20$ marks)

Answer ALL the questions.

1. Define Operators.

2. What are the applications of mobile ecosystem?

3. Mention pros and cons of the Mobile Websites.

4. What is meant by Utility Apps?

5. Define Wireframes.

6. What is iconography?

7. What is meant by MIDlet?

8. When Event Handling is used?

9. Define SDK.

10. Where Android AVD is used?

PART B — ($5 \times 5 = 25$ marks)

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

11. (a) Write a note on Mobile Networks in Mobile Ecosystem.

Or

(b) Write down the Platforms of the Mobile Ecosystem.

12. (a) What is SMS? Explain briefly.

Or

(b) Write short notes on GPS.

13. (a) What are Sitemaps.? Explain.

Or

(b) What is interpreting design? Explain.

14. (a) Explain about Event Handling.

Or

(b) Explain in detail about 'Hello world' application using wireless toolkit.

15. (a) Describe the features of Google Android.

Or

(b) Write a note on RIM Balckberry.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Illustrate the mobile ecosystem architecture and its components.

17. Describe in detail about Apps in Mobile Device Profiles.

18. What are the elements of mobile design? Explain.

19. Exemplify Software Development Kit.

20. Discuss in detail about Development framework of Google Android.

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D–2217

Sub. Code
34143

DISTANCE EDUCATION

M.Sc. (Computer Science) DEGREE EXAMINATION,
DECEMBER 2023.

Fourth Semester

ARTIFICIAL INTELLIGENCE AND EXPERT SYSTEMS

(CBCS–2018–2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — ($10 \times 2 = 20$ marks)

Answer ALL questions.

1. Define Forward Reasoning.

2. What are Local Search Algorithms?

3. What do you mean by Syntax and Semantics?

4. Define Pattern Recognition.

5. What are the Components of an Expert System?

6. What is the purpose of defining domain knowledge?

7. How will the triangle table works?

8. Define Graph Planning.

9. Define Quantization.

10. What do you mean by Image Data Reduction?

PART B — ($5 \times 5 = 25$ marks)

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

11. (a) Explain the Forward and Backward Reasoning.

Or

(b) Elucidate with neat Sketch on working of Genetic Algorithm.

12. (a) What are Inference Rules? Explain with suitable example.

Or

(b) Write Short notes on Learning Phase.

13. (a) Elucidate the Characteristics feature of an Expert System.

Or

(b) Describe in detail about Expert System Shell.

14. (a) Write short notes on Robot Problem Solving with suitable example.

Or

(b) Describe shortly on Symbolic Spatial Relationships.

15. (a) Describe in brief about functions in Vision System.

Or

(b) What is Object Recognition? Explain.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Explain in detail about the Measuring Problem Solving Agents with neat Sketch.

17. Describe the Knowledge Engineering Process with proper illustration.

18. What are the components of an Expert System? Explain their functions with suitable example.

19. Explain with proper illustration, the Monkey and Banana Problem.

20. Elucidate in detail on Training the Vision System with neat Sketch.

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