D–1533	Sub. Code
	34111

DISTANCE EDUCATION

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

First Semester

DESIGN AND ANALYSIS OF ALGORITHMS

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — ($10 \times 2 = 20$ marks)

Answer ALL questions.

1. Write the parameters list to find out the efficiency of an algorithm.

2. What is the use of white box testing?

3. How does recursion works?

4. What is the use of brute force algorithm?

5. Define optimal binary search tree.

6. List out the types of Huffman code.

7. Write the activities of decrease and conquer strategy.

8. Define Heap.

9. What is called Hamiltonian cycle?

10. Define strongly connected components of a graph.

PART B — ($5 \times 5 = 25$ marks)

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

11. (a) List the different criterions used in evaluating the efficiency of an algorithm.

Or

(b) Explain different properties of asymptotic notation.

12. (a) Write an algorithm for computing Fibonacci series using recursion.

Or

(b) Write short notes on Stassen's matrix multiplication.

13. (a) How to compute all pairs shortest path for a graph? Explain.

Or

(b) How does container loading problem works? Explain.

14. (a) Describe the working of BFS algorithm.

Or

(b) Write short notes on generating combinational objects.

15. (a) How to compute strongly connected components using Kosaraju's algorithm?

Or

(b) Write the general and mathematical properties of spanning tree.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Explain THETA and BIG-OH notations.

17. Explain selection sort with example.

18. How to create a spanning tree using prim's algorithm? Explain with example.

19. Describe about topological sort with example.

20. Explain the solving strategy of 8-Queen problem.

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D–1534

Sub. Code
34112

DISTANCE EDUCATION

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

First Semester

APPLIED MATHEMATICS FOR COMPUTER SCIENCE

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — ($10 \times 2 = 20$ marks)

Answer ALL questions.

1. What is meant by tautology?

2. Define Well Formed Formula.

3. What is quantifier?

4. Define PDNF and PCNF.

5. What is complete bipartite graph?

6. What is a spanning tree?

7. What is feasible solution?

8. Define surplus variable.

9. What do you understand by degeneracy in a transportation problem?

10. What is an unbalanced assignment Problem?

PART B — ($5 \times 5 = 25$ marks)

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

11. (a) Construct the truth table for $(P \to Q) \wedge (Q \to P)$.

Or

(b) What are connectives? Explain.

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

Or

(b) Find the disjunctive normal form of $(\neg p \to r) \wedge (p \leftrightarrow q)$.

13. (a) State the necessary and sufficient conditions for the existence of an Eulerian path in a connected graph.

Or

(b) What is a binary tree? How to identify the height of the binary tree? Illustrate.

14. (a) What is LPP? Explain the procedure to solve LPP using simplex algorithm.

Or

(b) Solve the following LPP graphically

Maximize $Z = 30x_1 + 20x_2$

Subject to

$3x_1 + 3x_2 \geq 40$

$2x_1 + 5x_2 \geq 44$

$x_1, x_2 \geq 0$

15. (a) Obtain the initial solution to above TP using northwest corner method.

	D1	D2	D3	D4	Supply
O1	6	4	1	5	14
O2	8	9	2	7	16
O3	4	3	6	2	5
Demand	6	10	15	4	

Or

(b) Five men are available to do five different jobs. From past records, the time (in hours) that each man takes to do each job is known and is given in the following table:

		Jobs				
		I	II	III	IV	V
Men	A	2	9	2	7	1
	B	6	8	7	6	1
	C	4	6	5	3	1
	D	4	2	7	3	1
	E	5	3	9	5	1

Find out how men should be assigned the jobs in a way that will minimize the total time taken.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. (a) Check the following statement is tautology or contradiction.

$\neg(Q \to R) \wedge R \wedge (Q \to R)$

(b) Show that

$(\neg P \to R) \wedge (Q \leftrightarrow P) \Leftrightarrow (P \vee Q \vee R) \wedge (P \vee \neg Q \vee R) \wedge (P \vee \neg Q \vee \neg R) \wedge (\neg P \vee Q \vee R) \wedge (\neg P \vee Q \vee \neg R)$.

17. (a) Without using truth table find PCNF of $(P \to (Q \wedge R)) \wedge (P \to (\neg Q \wedge \neg R))$

(b) Prove the implication $\forall x(P(x)) \to Q(x) \wedge \forall x$

$(R(x) \to \neg Q(x)) => \forall x(R(x) \to \neg P(x))$

18. What is a graph? When a graph is said to be regular graph? Explain the matrix representations of a graph.

19. Use two-phase method to solve the following LP Problem:

Minimize $Z = x_1 + x_2$

Subject to the constraints

$2x_1 + x_2 \geq 4$

$x_1 + 7x_2 \geq 7$ and

$x_{1,}\ x_2 \geq 0$

20. Find optimal solution of the following transportation problem by MODI method.

	Chilling Centres				
Routes	P	Q	R	S	Supply
A	16	18	21	12	150
B	17	19	14	13	160
C	32	11	15	10	90
Demand	140	120	90	50	400

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DISTANCE EDUCATION

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

First Semester

ADVANCED JAVA PROGRAMMING

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — ($10 \times 2 = 20$ marks)

Answer ALL questions.

1. Define JDBC in Java Beans.

2. How to execute a statement in Java Beans?

3. Define Inetaddress.

4. What do you mean by RMI?

5. What are the properties of Java Beans?

6. Define Bean Customization.

7. How to Initialize the Servlets parameters?

8. What is Session Tracking?

9. State the use of Trees in AWT.

10. List out various containers available in AWT.

PART B — ($5 \times 5 = 25$ marks)

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

11. (a) Demonstrate with suitable example the Statement Interface in Java Beans.

Or

(b) Summarize the components of SQL Warning Statements with suitable example.

12. (a) Explain the Inetaddress Class with example program.

Or

(b) Elaborate Stub and Skeleton of RMI with neat sketch.

13. (a) Elucidate the components of Bean Development Kit.

Or

(b) Write short notes on Structural Design pattern in Java.

14. (a) Write a Servlets program to illustrate Client request.

Or

(b) How cookies are handled in Java? Explain.

15. (a) Explain briefly working of Java AWT Buttons.

Or

(b) Explain the procedures to implement fonts in AWT classes with proper illustration.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Explain in detail, processing and executing statement Interface and result set with JDBC.

17. Elucidate in detail on TCP/IP Client Socket with suitable illustration.

18. Describe the Constrained Properties with Veto Listeners in Java.

19. Explain the Session Management procedure in Java.

20. Discuss about AWT Graphics Class with suitable example program.

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D–1536

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34121

DISTANCE EDUCATION

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

Second Semester

COMPUTER SYSTEM ARCHITECTURE

(CBCS 2018-19 Academic Year onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. What is Personal Mobile Device?

2. Define Embedded Computer.

3. What is called loop level parallelism?

4. Why we need control dependences?

5. Define snooping.

6. What do you mean by Thread level parallelism?

7. What must a VM Monitor do?

8. What is called SRAM Technology?

9. Define response time.

10. What is Transaction processing?

PART B — (5 × 5 = 25 marks)

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

11. (a) Explain the Instruction Set Architecture.

Or

(b) Write about the Trends in Technology.

12. (a) Explain about Dynamic Scheduling.

Or

(b) What are the limitations of ILP? Explain.

13. (a) Write a note on Directory based cache coherence protocols.

Or

(b) Discuss the cross cutting issues in synchronization.

14. (a) What is Flash Memory? Explain.

Or

(b) Discuss the design of memory hierarchies.

15. (a) Write short note on Berkeley's Tertiary disk.

Or

(b) Compare throughput versus response time.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Explain in detail about the quantitative principles of Computer Design.

17. Narrate the advanced technique for instruction delivery and speculation.

18. Illustrate the concepts in synchronization models.

19. How do you protect the process via virtual memory and virtual machines? Discuss.

20. Explain the features of reliability measures and bench marks.

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D–1537

Sub. Code
34122

DISTANCE EDUCATION

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

Second Semester

DISTRIBUTED OPERATING SYSTEMS

(CBCS 2018-19 Academic Year onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. What is network topology?

2. Define protocol.

3. Differentiate Encoding and Decoding process.

4. What is meant by process addressing?

5. What is Thrashing?

6. What do you mean by clock drift?

7. Mention the services of distributed file system.

8. What is file replication?

9. Define authentication.

10. Specify the need of openness in distributed system.

PART B — (5 × 5 = 25 marks)

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

11. (a) Compare Centralized and Distributed System.

Or

(b) Write notes on evolution of distributed operating systems.

12. (a) Explain the concept of Buffering.

Or

(b) Discuss the internal and external synchronization of Physical clocks.

13. (a) Describe about Heterogeneous DSM and its advantages.

Or

(b) Explain the importance of Election algorithm.

14. (a) Explain the characteristics of distributed file system.

Or

(b) Discuss file sharing semantics and file caching schemes.

15. (a) What are the potential attacks to computer system? Explain.

Or

(b) Explain about access control.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Describe the architecture of distributed operating systems.

17. How failure is handled in message passing? Explain.

18. Discuss in detail about design and implementation issues in DSM.

19. Explain the significance of modules of file system operations and write in detail about distributed file system requirements.

20. Write notes on :

    (a) Key distribution

    (b) Design principles.

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34123

DISTANCE EDUCATION

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

Second Semester

.NET PROGRAMMING

(CBCS 2018-19 Academic Year onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Write any two features of CLR.

2. What is 'Garbage collection'?

3. List any four VB.Net looping statements.

4. Define exception handling.

5. Write the use of timer control.

6. State the purpose of custom control.

7. Define Session object.

8. State the use of overriding concept.

9. Write any two benefits of ADO.NET.

10. What are the uses of Data Grid?

PART B — (5 × 5 = 25 marks)

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

11. (a) Summarize the benefits of .NET.

Or

(b) Discuss about the .NET framework libraries.

12. (a) Describe about inheritance in VB.Net with an example.

Or

(b) Write a short note on menu bar and status bar.

13. (a) How dynamic arrays are created in VB.Net with example?

Or

(b) Discuss about text box and rich text box.

14. (a) Describe the different file types in ASP.NET.

Or

(b) What is state management in ASP.NET? Describe.

15. (a) Explain the basic concepts of ADO.NET.

Or

(b) Explain how to use SQLServer with VB.Net.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Explain in detail about Visual Studio IDE.

17. What are delegates and events in VB.Net? Explain.

18. Compare and contrast of list box and combo box controls.

19. How to build forms with web server controls in ASP.NET? Explain.

20. Write a detail note on data management in ADO.NET.

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34131

DISTANCE EDUCATION

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

Third Semester

CRYPTOGRAPHY AND NETWORK SECURITY

(CBCS 2018-19 Academic Year onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. How will you categorize the security attacks?

2. Define cryptanalysis.

3. Distinguish between stream and block cipher.

4. What are the two types of cryptanalysis?

5. What is PKI? Define.

6. How to overcome men in middle attack in key exchange protocols?

7. What is digital signature?

8. What are the two categories of MAC attacks?

9. Name any five types of threats on using web.

10. List the components of message.

PART B — (5 × 5 = 25 marks)

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

11. (a) What are the objectives of computer security?

Or

(b) Explain the model of network security with diagram.

12. (a) Explain in detail about the block cipher principles.

Or

(b) What are the four distinct transformation functions in AES? Explain briefly.

13. (a) What is public key cryptography? Explain the essential steps.

Or

(b) Describe the pseudo random number generation based on RSA.

14. (a) What are message authentication functions? Explain.

Or

(b) Describe the requirements of Digital Signature.

15. (a) What are the possible ways to provide Web Security?

Or

(b) What is PGP? Explain the operations involved in PGP.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Explain the OSI security architecture with neat diagram.

17. Describe the working of DES.

18. Explain the Diffie-Hellman Key Exchange Algorithm.

19. How will you secure MACs? Describe.

20. Discuss about IP Security and IPSec architecture.

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D–1540

Sub. Code
34132

DISTANCE EDUCATION

M.Sc. (Computer Science) DEGREE EXAMINATION,
MAY 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 Various types of cloud.

2. What is the need for Cloud Computing?

3. How to collaborate the Contact lists using Cloud?

4. What are the various types of Online Scheduling in Cloud Computing?

5. What is the purpose of Online Cloud Calendar Application?

6. What are the tools available in Cloud for storing and sharing the files?

7. Define VCloud.

8. What is the purpose of Amazon S3?

9. Define Cloud Virtualization.

10. What do you mean by Logical Partitioning?

PART B — ($5 \times 5 = 25$ marks)

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

11. (a) Describe the Pros and Cons of Cloud Computing paradigm.

Or

(b) Classify the various Cloud Deployment Models with neat Sketch.

12. (a) How will the Cloud Services Collaborate on Group Projects and Events?

Or

(b) List the Online Scheduling Applications available in the Cloud Computing in brief.

13. (a) Analyze the working procedure for Cloud Contact Management with suitable illustration.

Or

(b) Describe in detail about the Event Management Applications available in the Cloud.

14. (a) Write short notes on Amazon Web Services.

Or

(b) Compare and contrast various Cloud computing Platforms.

15. (a) Describe in brief about the Server Virtualization for Cloud.

Or

(b) Describe the Way, how logical partitioning works in Cloud Governance.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. What are the various Cloud Development Services and Tools available? Explain in detail.

17. How the Cloud Computing, will be used for Managing Community? Explain.

18. Describe the Event Management Applications available in Cloud with Neat Sketch.

19. Explain in detail with proper illustration, the Windows Azure Platform for Cloud Implementation.

20. Recommend the planning strategies for Hypervisor Management using Virtualization in Cloud.

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	34133

DISTANCE EDUCATION

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

Third Semester

WEB TECHNOLOGY

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Define web technology.

2. List the multimedia objects.

3. State the function of "typeof" operator in JavaScript.

4. What is the use of confirm( ) function?

5. What is intrinsic event handling?

6. Define XSL.

7. What is Java Servlet? Define.

8. State the role of init( ) and destroy( ) methods.

9. Specify about JSP tag library.

10. Define JSP life cycle.

PART B — ($5 \times 5 = 25$ marks)

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

11. (a) What are style sheets? Explain with example.

Or

(b) Elucidate about HTML table tags.

12. (a) How to handle array functions in JavaScript? Explain.

Or

(b) What is Data validation? Discuss.

13. (a) How XSLT transforms the document from one (word) type to other type (HTML)? Explain.

Or

(b) Describe representation of web data.

14. (a) What is single thread model? Explain.

Or

(b) Differentiate client side caching and server side caching.

15. (a) Elucidate briefly about creating, installing and running a JSP page.

Or

(b) Discuss about MVC architecture in JSP with example.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Design an interactive web page for student registration in quiz competition using HTML form elements with suitable design and colors.

17. What is Dynamic HTML? Discuss its features.

18. Explain in detail about representing and processing XML using Java Script.

19. Describe about functions used for retrieving information.

20. Write a JSP program to add employee details to a database from HTML form.

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	34141

DISTANCE EDUCATION

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

Fourth Semester

DATAMINING AND WAREHOUSING

(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 warehouse schema.

2. Mention the role of warehouse Software.

3. What is data mining?

4. Define data cleaning.

5. State the use of Association rule.

6. Define back propagation algorithm.

7. Define CACTUS algorithm.

8. What are neural networks?

9. Define web structure mining.

10. Specify the use of weka tool.

PART B — ($5 \times 5 = 25$ marks)

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

11. (a) Elucidate the role of data warehousing in Government administration.

Or

(b) Illustrate about data Integration.

12. (a) Write short notes on different forms of knowledge.

Or

(b) Describe about measures of similarity and dissimilarity.

13. (a) Discuss in detail about decision tree classification.

Or

(b) Explain about Bayesian classification algorithm.

14. (a) Illustrate about K-means algorithms.

Or

(b) Differentiate supervised learning and unsupervised learning.

15. (a) Explain about web usage mining.

Or

(b) Discuss about the features of Matlab tool.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Write notes on data Extraction tools and data Transformation tools.

17. Discuss about Data Exploration in data mining process.

18. Explain Apriori algorithm with example.

19. Explain how does partitioning around Kmedoids algorithm achieve the goal of clustering?

20. Describe about text mining and visual data mining.

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D–1543

Sub. Code
34142

DISTANCE EDUCATION

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

Fourth Semester

MOBILE APPLICATION DEVELOPMENT

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. What do you mean by Mobile Ecosystem?

2. List down the types of Mobile Platforms.

3. What are the various categories of Mobile Applications?

4. What do you mean by Informative Apps?

5. Define Sitemaps.

6. List down the elements for the Mobile application design.

7. Define J2ME.

8. What are the various languages used for the MIDlet programming?

9. Define Emulator.

10. What do you mean by IOS?

PART B — ($5 \times 5 = 25$ marks)

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

11. (a) Write short notes on Networks for Mobile Ecosystem.

Or

(b) Classify the application frameworks for designing the Mobile apps.

12. (a) Explain briefly about the Utility Applications.

Or

(b) What are Location Based Services? Explain.

13. (a) What are the elements used for Mobile Application design? Explain briefly.

Or

(b) Describe the Prototyping in Mobile Application Designing.

14. (a) Summarize the Small computing device requirements.

Or

(b) Write short notes on J2ME SDK.

15. (a) Describe in brief about the Google Android Application.

Or

(b) Explain briefly SDK Framework for Microsoft Windows Operating System.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. What are the Application Frameworks? Explain in detail the Applications and services.

17. Elucidate Mobile Applications with examples.

18. Describe various Designing Tools used for different Screen and devices.

19. Explain with proper illustration, the working of MIDlet Programming.

20. Summarize the framework for Symbian Operating System.

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	34143

DISTANCE EDUCATION

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

Fourth Semester

ARTIFICIAL INTELLIGENCE AND EXPERT 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 problem formulation process?

2. How does local search algorithm operates?

3. What is propositional logic?

4. Define inductive learning.

5. Give some examples of expert system.

6. What is expert system shell?

7. How AI is Used in Robotics?

8. What is frontier?

9. What is a vision in an organic system?

10. Define Local edge detection.

PART B — ($5 \times 5 = 25$ marks)

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

11. (a) What is AI? Explain the application areas of AI.

Or

(b) Explain the concept of genetic algorithms.

12. (a) What are connectives? Explain.

Or

(b) Explain the ensemble learning.

13. (a) What are the characteristics features of Expert system? Explain.

Or

(b) Explain the knowledge acquisition process.

14. (a) Write short notes on AND-OR graph.

Or

(b) Describe means end analysis in a robotic problem.

15. (a) Explain briefly the applications of machine vision.

Or

(b) What is encoding? Explain different types of encoding.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Describe the Depth first search strategy with example.

17. Explain the method for constructing Bayesian networks.

18. Discuss about the rule based system architecture.

19. Explain different types of robots and their usage.

20. What are the components and the functions of a computer vision system? Explain.

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