DISTANCE EDUCATION

M.Sc.(Computer Science) DEGREE EXAMINATION,
DEC 2020.

First Semester

DESIGN AND ANALYSIS OF ALGORITHMS

(CBCS 2018–19 Academic Year onwards)

Time : Three hours   Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1.   State the need for algorithms in problem solving.

2.   Define omega notation.

3.   Define the term matrix and its usage.

4.   Differentiate binary search and linear search.

5.   What do you mean by knapsack?

6.   What is the formula for computing binomial coefficient?

7.   What are the types of sorting available?

8.   What is a graph?

9.   Define subset.

10.   What is the significance of branch and bound method?

PART B — (5 × 5 = 25 marks)

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

11. (a) Write the importance of algorithm and explain about algorithm efficiency.

Or

(b) Explain in detail about the pseudo code for algorithms.

12. (a) Describe in detail about quick sort.

Or

(b) Explain sequential sorting with an example program.

13. (a) Explain about knapsack problem with an example.

Or

(b) Elaborate on Dijikstra's algorithm.

14. (a) Illustrate decrease and conquer problem with an example.

Or

(b) Elucidate with relevant example about heap.

15. (a) Explain assignment problem with a real time example.

Or

(b) Discuss about spanning trees.

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PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

All questions carry equal marks.

16. Describe in detail about asymptotic notations.

17. Explain strassens matrix multiplication.

18. Elaborate about kruskals algorithm.

19. Explain optimization problems with an example.

20. Describe in detail about traveling salesman problem.

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DISTANCE EDUCATION

M.Sc. (Computer Science) DEGREE EXAMINATION,
DEC 2020.

First Semester

APPLIED MATHEMATICS FOR COMPUTER SCIENCE

(CBCS 2018-2019 Academic Year onwards)

Time : 3 hours   Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Let P : it is freezing, Q : It is snowing. Write the symbolic form of 'It is freezing but not snowing'.

2. Construct truth table for $P \wedge \neg P$.

3. Give the symbolic form of the statement "All men are giants".

4. Define PCNF statement.

5. Give an example for rooted tree.

6. What is an incidence matrix?

7. Write the expansion of L.P.P.

8. What are basic and non-basic variables in an L.P.P.?

9. List the methods used for findings the IBFS for a Transportation problem.

10. Define assignment problem.

PART B — (5 × 5 = 25 marks)

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

11. (a) Using the truth table, prove that the formula $Q \vee (P \wedge \neg Q) \vee (\neg P \wedge \neg Q)$ is a tautology.
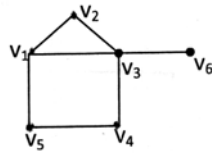
Or

(b) Write the Laws of Equivalence.

12. (a) Verify that $R \wedge (P \vee Q)$ is valid conclusion from the premises $P \vee Q$, $Q \to R$, $P \to M$ and $\neg M$.

Or

(b) Find the Principal Conjunctive Normal form of $P \vee (Q \to R)$.

13. (a) Find the adjacency matrix of the following graph.

Or

(b) Write briefly about walk, path and circuit in a connected graph.

14. (a) A company produces two types of hats. Each hat of type A requires twice as much labour time as the second hat B. If all are of hat B only, the company can produce a total of 500 hats a day. The market limits daily sales of the hat A and hat B are 150 and 250 hats. The profits on hat A and B are Rs. 8 and Rs. 5 respectively. Formulate this as an L.P.P.

Or

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(b) Solve the following LPP by graphical method

Maximize $Z = 4x + 7y$

Subject to $x + y \leq 60$;

$x \leq 40$; $y \leq 40$ and $x, y \geq 0$.

15. (a) Find the initial basic feasible solution for the following transportation problem using North West Corner rule.

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

Or

(b) Solve the following assignment problem.

$$\begin{pmatrix} 10 & 12 & 19 & 11 \\ 5 & 10 & 7 & 8 \\ 12 & 14 & 13 & 11 \\ 8 & 15 & 11 & 9 \end{pmatrix}$$

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Prove that $P \rightarrow (Q \rightarrow R) \Leftrightarrow P \rightarrow (\neg Q \vee R) \Leftrightarrow (P \wedge Q) \rightarrow R$ using truth table.

17. Show that $R \rightarrow S$ can be derived from the premises $(P \rightarrow (Q \rightarrow S))$, $\neg R \vee P$ and Q.

18. State and prove any three properties of a tree.

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19. Use simplex method to solve the L.P.P.

Max $Z = 5x_1 + 4x_2$

Subject to: $4x_1 + 5x_2 \leq 10$;

$$3x_1 + 2x_2 \leq 9;$$
$$8x_1 + 3x_2 \leq 12;$$
$$x_1,\, x_2 \geq 0.$$

20. A company has 4 machines to do 3 jobs. Each job can be assigned to only one machine. The cost of each job on each machine is given below. Determine the job assignments that will minimize the total cost.

		P	Q	R	S
	A	18	24	28	32
Job	B	8	13	17	18
	C	10	15	19	22

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DISTANCE EDUCATION

M.Sc. (Computer Science) DEGREE EXAMINATION,
DEC 2020.

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.   Write a note on SQL warning.

2.   What is resultset?

3.   What are data grams?

4.   What do you meant by sockets?

5.   Write the naming patterns in Java bean.

6.   What are the JAR command option?

7.   What is generic servlet?

8.   Define HTTP.

9.   What is JApplet?

10.   List the classes available in AWT.

PART B — (5 × 5 = 25 marks)

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

11. (a) What are drivers? Explain about the driven available in JDBC.

Or

(b) Explain about exception handling with suitable example.

12. (a) Describe java networking using TCP/IP.

Or

(b) Write in detail about Java utility classes.

13. (a) Discuss the design patterns for properties in bean.

Or

(b) Briefly explain about the bean builder tools.

14. (a) Compare and contrast between servlet and JSP.

Or

(b) Discuss between servlet structure for RMI technology.

15. (a) Differentiate JTexArea and JTextField.

Or

(b) Discuss about AWT controls with example.

2 **D–5044**

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

All questions carry equal marks.

16. What are the various classes available in JDBC? Explain.

17. Explain the layers of RMI architecture.

18. Explain in detail about events and methods in Javabean.

19. What are the various ways of session tracking in servlet? Explain.

20. Develop the E-Commerce webpage using JApplet.

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DISTANCE EDUCATION

M.Sc.(Computer Science) DEGREE EXAMINATION,
DEC 2020.

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 do you mean by embedded computers?

2. Define memory addressing.

3. What is instruction – level parallelism?

4. Write the purpose of branch prediction buffer.

5. List out the multiprocessor categories.

6. What is snooping?

7. What is the purpose of set associative scheme?

8. Differentiate between access time and cycle time.

9. What is computer system dependability?

10. How will you classify faults?

PART B — (5 × 5 = 25 marks)

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

11. (a) Explain the instruction set architecture in brief.

Or

(b) Define the term "Cost". How will you evaluate the cost of an integrated circuit?

12. (a) Explain briefly the concepts and challenges of the instruction level parallelism.

Or

(b) Write short notes on dynamic scheduling.

13. (a) Explain the taxonomy of parallel architectures.

Or

(b) List out the limitations of shared memory multiprocessor, architecture.

14. (a) Briefly explain cache optimization.

Or

(b) What is the purpose of using page based virtual memory for protection? Explain.

15. (a) Write short notes on disk arrays.

Or

(b) What are transaction – processing benchmarks? Explain.

2 **D–5045**

Answer any THREE questions.

16. Define the term computer architecture. Describe the instruction set architecture with MIPS64 architecture format.

17. Explain in detail about data dependencies and hazards found in instruction level parallelism.

18. Explain the basic implementation technique of symmetric shard memory architecture in thread level parallelism with suitable example.

19. Define cache performance. Write a detailed note on eleven advanced optimizations of cache performance.

20. Explain in detail about designing and evaluating I/O system.

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		34122

DISTANCE EDUCATION

M.Sc. (Computer Science) DEGREE EXAMINATION,
DEC 2020.

Second Semester

DISTRIBUTED OPERATING SYSTEM

(CBCS 2018–19 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.   What does an IP address contain?

3.   Distinguish between original sharing and copy sharing.

4.   What is atomic multicasting?

5.   What is meant by Happened-before relation?

6.   Write the necessary conditions for deadlock.

7.   What is the purpose of using files?

8.   Differentiate between replication and catching.

9.   What is an active attack?

10. What is asymmetric cryptosystem?

PART B — (5 × 5 = 25 marks)

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

11. (a) Explain the workstation model and workstation server model.

Or

(b) Explain the LAN topologies.

12. (a) Explain the desirable properties of good message passing system.

Or

(b) Explain process addressing.

13. (a) Explain the token passing approach in mutual exclusion.

Or

(b) Explain passive time server and active time server centralized algorithms.

14. (a) Discuss about various file models.

Or

(b) Explain the design principles for designing distributed file system.

15. (a) Explain the different approaches to authentication.

Or

(b) Explain about access matrix entries.

2   **D–5046**

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

All questions carry equal marks.

16. Discuss about the different issues in designing distributed operating system.

17. Explain many to many communication.

18. Explain weak consistency model and strong consistency model.

19. Explain the file accessing models.

20. Explain the potential attacks to computer system.

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D–5046

DISTANCE EDUCATION

M.Sc.(Computer Science) DEGREE EXAMINATION,
DEC 2020.

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.   What are assemblies?

2.   What is CLR?

3.   Why are link labels used?

4.   Define a procedure.

5.   What is a tooltip?

6.   What is the purpose of timer control?

7.   Mention the use of adrotator class.

8.   Why is a validation control used?

9.   Specify the namespaces for using ADO.NET.

10. Define DataReader.

PART B — (5 × 5 = 25 marks)

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

11. (a) Explain .NET class library.

Or

(b) Discuss the concept of inheritance.

12. (a) Write notes on sub procedures and function.

Or

(b) Explain the MsgBox function.

13. (a) Bring out the importance of Timer class.

Or

(b) Write notes on checkboxes.

14. (a) Write notes on global.asax.

Or

(b) Explain HttpRequest class.

15. (a) Explain the characteristics of ADO.NET.

Or

(b) Write notes on data binding.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Discuss in detail the concept of polymorphism.

17. Illustrate the use of dialog boxes with an example.

18. Explain the use of combo boxes with an example.

19. Write notes on calendar control in .NET.

20. Explain the use of datalists in .NET.

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DISTANCE EDUCATION

M.Sc.(Computer Science) DEGREE EXAMINATION, DEC 2020.

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.   What is ceasar cipher?

2.   List any four security services.

3.   How block cipher works?

4.   Differentiate linear and differential cryptanalysis.

5.   Define public key cryptography.

6.   Expand ECC and RSA.

7.   What is the purpose of MAC?

8.   Why digital signature is needed?

9.   Expand SSL and TCP.

10. How transposition process works?

PART B — (5 × 5 = 25 marks)

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

11. (a) Write a note on substitution technique.

        Or

    (b) Explain about various attacks.

12. (a) Write a detail note on DES.

        Or

    (b) Comment on the block cipher design principles.

13. (a) Differentiate conventional and public key
         encryption.

        Or

    (b) Write an essay on ECC.

14. (a) Discuss about the important of digital signature.

        Or

    (b) Write a note on security of HMAC.

15. (a) Write a short note on transport layer security.

        Or

    (b) Discuss on IP security policy.

            PART C — (3 × 10 = 30 marks)

            Answer any THREE questions.

16. Write about generic ceasar cipher model with example.

17. Write a detailed note on AES.

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18. Explain in detail about public cryptosystems with neat diagrams.

19. Explain message authentication code in detail.

20. Discuss in detail about e-mail security.

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D–5049	Sub. Code
	34132

DISTANCE EDUCATION

M.Sc.(Computer Science) DEGREE EXAMINATION,
DEC 2020.

Third Semester

CLOUD COMPUTING

(CBCS 2018–19 Academic Year onwards)

Time : Three hours   Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1.   List the key properties of cloud computing.

2.   Write any two cloud service development tools.

3.   What is the need for centralong email communications?

4.   Write the benefits of web based word processors.

5.   Define on demand computing.

6.   Write short notes on Google Calendar.

7.   Define contact management.

8.   List any four online bookmarking services.

9.   Define virtualization.

10.   Write the requirements for virtual infrastructure.

PART B — (5 × 5 = 25 marks)

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

11. (a) Write about the cloud architecture.

Or

(b) Discuss about the pitfalls of could computing.

12. (a) Explain about collaborating on school projects.

Or

(b) Write a note on collaborating to-do lists.

13. (a) Write a note on Google and Yahoo calendar.

Or

(b) Write about the users of web based word processor.

14. (a) Discuss about Amazon web services.

Or

(b) Describe about windows azure platform.

15. (a) Explain the risk of storing data in the clouds.

Or

(b) Discuss about logical partitioning.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Explain in detail about the evolution of cloud computing.

17. Discuss in detail of cloud computing for family.

18. Explain about web based databases.

19. Briefly explain about evaluation of online file storage and sharing services.

20. Discuss in detail about hypervisor management software.

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D–5050	Sub. Code
	34133

DISTANCE EDUCATION

M.Sc.(Computer Science) DEGREE EXAMINATION,
DEC 2020.

Third Semester

WEB TECHNOLOGY

(CBCS 2018–19 Academic Year onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Define WWW.

2. What is the purpose of style sheets?

3. Write about null and undefined data types in java script.

4. Define events in java script.

5. What is DOM?

6. Define XML schema.

7. What do you mean by servlet reloading?

8. What is the purpose of init( ) and destroy( ) functions?

9. List some features of JSP?

10. What do you mean by HTTP request/response model?

PART B — (5 × 5 = 25 marks)

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

11. (a) Explain about table elements and attributes in HTML.

Or

(b) Discuss about form controls in HTML.

12. (a) Explain about operators in java script.

Or

(b) Write about the functions in java script.

13. (a) Write about XML document structure.

Or

(b) Explain about XSL.

14. (a) Explain about servlet life cycle.

Or

(b) Explain about the servlet API.

15. (a) Explain about anatomy of JSP page.

Or

(b) Describe the procedure for installing Tomcat server.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Explain in detail CSS properties in style sheets.

17. Explain in detail about conditional statements and looping in java script.

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18. Explain in detail about DOM based XML processing.

19. Explain in detail about servlet chaining and filtering.

20. Explain in detail about objects in JSP.

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D–6482	Sub. Code
	34141

DISTANCE EDUCATION

M.Sc. DEGREE EXAMINATION, DECEMBER 2020.

Fourth Semester

Computer Science

DATA MINING AND WARE HOUSING

(CBCS 2018-2019 Academic year onwards)

Time : Three hours   Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1.   Define data warehousing.

2.   What is the difference between database and data warehouse?

3.   What are frequent episodes? Name the three types of episodes.

4.   What is visualization?

5.   Define association rule.

6.   What is supervised learning technique?

7.   Define divisive clustering.

8.   Define noise.

9. What is Pagerank?

10. Differentiate information retrieval and information extraction.

PART B — (5 × 5 = 25 marks)

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

11. (a) Explain the different modes of warehouse server.

Or

(b) Write about extraction and transformation tools.

12. (a) Illustrate different types of data.

Or

(b) Write notes on current trends in data mining.

13. (a) Explain Dynamic Itemset Counting algorithm.

Or

(b) Explain classification by back propagation.

14. (a) Explain ROCK clustering algorithm.

Or

(b) Describe DBSCAN.

15. (a) Discuss various temporal data mining tasks.

Or

(b) Write notes on knowledge mining.

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PART C — (3 × 10 = 30 marks)

Answer any THREE questions

All questions carry equal marks

16. Elaborate the basic OLAP operations with suitable examples.

17. Describe various data mining techniques.

18. Illustrate decision tree classification.

19. Bring out the significance of Genetic algorithm.

20. Discuss the three areas of Web Mining.

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D–6482

DISTANCE EDUCATION

M.Sc. DEGREE EXAMINATION, DECEMBER 2020.

Fourth Semester

Computer Science

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 is the use of Operators in Mobile Echo System?

2.   What is BREW?

3.   List any four Advantages of SMS Applications

4.   What is Mobile Web Applications?

5.   What is Information Architecture?

6.   Define the term Look and feel

7.   What is the major role of Java Archive File?

8.   What is the use of JAD?

9.   What is Emulator?

10. What is an Android Framework?

PART B — (5 × 5 = 25 marks)

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

11. (a) Write a short note on GSM Mobile Network Evolutions.

Or

(b) Discuss about Mobile Operating System.

12. (a) Discuss about Mobile Websites with their pros and cons.

Or

(b) Write a Short note on Native Applications.

13. (a) Write a detailed note on Designing for Different Screen Sizes.

Or

(b) Discuss about Click Streams with example.

14. (a) Discuss about java Language for J2ME.

Or

(b) Explain about MIDLet Program with example.

15. (a) Discuss about Android AVD.

Or

(b) Discuss about the Samsung Bada Framework.

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PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

All questions carry equal marks.

16. Elaborate Mobile Application Frameworks.

17. Discuss the following:
    (a) Application Context
    (b) Utility Context
    (c) Application Content Matrix
    (d) Informative Applications.

18. Describe Site Maps with example.

19. How to Create and Run the "Hello World" Program in J2ME? Explain.

20. Illustrate the Project Framework of Microsoft Windows Phone.

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D–6483

D–6484	Sub. Code
	34143

DISTANCE EDUCATION

M.Sc. DEGREE EXAMINATION, DECEMBER 2020.

Fourth Semester

Computer Science

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 heuristic function?

2. List out the genetic algorithm operators.

3. Enumerate the levels of knowledge representation.

4. What are fuzzy sets?

5. Define: Expert system

6. What is XCON?

7. Write the phases in task planning.

8. What are the categories of production system?

9. Give the types of Image Segmentation techniques.

10. Mention any two robotic application of machine vision.

PART B — (5 × 5 = 25 marks)

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

11. (a) State the characteristics of AI problem.

Or

(b) Write the forward chaining algorithm with suitable example.

12. (a) Explain resolution in predicate logic with example.

Or

(b) What is Dempster Shafer theory? Give suitable example.

13. (a) Give the applications of expert system.

Or

(b) List the details about rule based system architecture.

14. (a) What is Robot Task Planning? Explain it.

Or

(b) Discuss the procedure of graph planning.

15. (a) Summarize the steps involved in Image Quantization.

Or

(b) Brief about the robotics applications of machine vision.

D–6484

PART C — (3 × 10 = 30 marks)

Answer any THREE questions

All questions carry equal marks

16. Specify the necessary components to define AI problem with example.

17. Enumerate the steps involved in knowledge engineering process.

18. Elaborate the architecture of expert system with neat diagram. Mention its features.

19. Describe hierarchical planning method with suitable example.

20. Discuss in detail about object recognition techniques with example.

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