D–1557	Sub. Code
	31511

DISTANCE EDUCATION

M.C.A. DEGREE EXAMINATION, MAY 2023.

First Semester

DIGITAL COMPUTER ORGANIZATION

(CBCS 2018/2020 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — ($10 \times 2 = 20$ marks)

Answer ALL the questions

1. Convert $(736.4)_8$ to decimal number.

2. State the associative property of Boolean algebra.

3. Define the term Combinational circuit.

4. What is counter? Give an example.

5. Define the term register and give an example.

6. What is the difference between direct and indirect address instruction?

7. Mention the types of peripherals.

8. Compare Synchronous and Asynchronous transfers.

9. What is main memory?

10. Write the uses of cache memory.

PART B — ($5 \times 5 = 25$ marks)

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

11. (a) Write short notes on ASCII and Excess 3 codes.

Or

(b) Describe briefly about Quine Mc-Kluskey method.

12. (a) Draw the gate circuit of RS flip flop and obtain its truth table

Or

(b) Brief on half subtractors with its circuit diagram.

13. (a) Write short notes on interrupts.

Or

(b) Brief on the design of Accumulator.

14. (a) Describe the organization of general registers.

Or

(b) Discuss about serial communication.

15. (a) Discuss about Associative memory.

Or

(b) Write short notes on memory management hardware.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Explain the conversion of binary to decimal and hexadecimal to binary with example.

17. Discuss about Multiplexer and Demultiplexer.

18. Explain memory reference instructions.

19. Discuss in detail about various addressing modes.

20. Explain how virtual address can be mapped to physical address.

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D–1558

Sub. Code
31512

DISTANCE EDUCATION

M.C.A. DEGREE EXAMINATION, MAY 2023.

First Semester

OBJECT ORIENTED PROGRAMMING AND C++

(CBCS 2018 – 2020 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

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

Answer ALL questions

1. Define the term data encapsulation.

2. Draw the I/O stream hierarchy in C++.

3. What is the use of copy constructor?

4. Write the general form of a class declaration.

5. Define pure virtual function.

6. Write the syntax to declare a derived class.

7. Draw the hierarchy of stream classes for file operations.

8. Define the term class template.

9. What are the advantages of using exception handling?

10. List out any four common exceptions.

SECTION B — (5 × 5 = 25 marks)

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

11. (a) Explain the evolution of object oriented languages.

Or

(b) Illustrate the creation and use of user – defined manipulators.

12. (a) Write a C++ program to calculate the roots of a quadratic equations by initializing the object using default constructor.

Or

(b) Explain the concept of inline function with suitable program.

13. (a) Illustrate hybrid inheritance with the help of suitable example.

Or

(b) How to convert between objects and basic types? Explain with examples.

14. (a) With an example, explain the following functions for manipulating file pointers:

seekg(), seekp(), tellg(), tellp()

Or

(b) Discuss on function template with an example program.

15. (a) Write short notes on throwing mechanism.

Or

(b) How to handle exceptions in class templates? Explain with examples.

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions

16. Explain various formatted console I/O operations with suitable examples.

17. Explain the following with suitable examples:

    (a) Array of pointers

    (b) Friend function

18. What is the use of operator overloading? Write a program to overload post and pre increment operators.

19. How to inherit from template class? Explain with suitable example program.

20. Explain how to handle uncaught exceptions with appropriate example.

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D–1559	Sub. Code
	31513

DISTANCE EDUCATION

M.C.A. DEGREE EXAMINATION, MAY 2023.

First Semester

DATA STRUCTURE AND ALGORITHMS

(CBCS 2018 – 2020 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

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

Answer ALL questions.

1. Distinguish between linear and non-linear data structures.

2. List out the application of Array.

3. How do you test for empty condition of a queue?

4. What are the operations performed on Stack?

5. Define the term completely binary tree.

6. Draw the tree for the expression (a+b/c)+((d*e-f)/g).

7. Define the term interval search.

8. What is the time complexity of Binary search?

9. When Bubble sort algorithm stops?

10. Which sorting algorithm is best if the list is already sorted? Why?

SECTION B — (5 × 5 = 25 marks)

Answer ALL questions.

11. (a) Write short notes on primitive data types.

Or

(b) Explain in detail about space complexity of an algorithm.

12. (a) Briefly explain about header linked list.

Or

(b) Write down the algorithm to convert an expression from infix to reverse polish notation. Illustrate the steps for the following expression: (A+B)*D) ↑ (E+D.)

13. (a) Explain the different representations of Binary tree.

Or

(b) Construct the binary search tree using the following elements: 13,8,24,14,9,6,10. Illustrate preorder, inorder and postorder traversal for the same.

14. (a) Write the linear search algorithm. Calculate the time complexity of the linear search algorithm.

Or

(b) How linear search works? Explain with an example.

15. (a) Discuss in detail about tree sort method with an example.

Or

(b) Sort the following data using selection sort: 45 32 50 12 24 5 10

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. What do you mean by Array? Explain in detail about multi-dimensional Array.

17. Describe the various operations on doubly linked list with examples.

18. Classify the Hashing functions and explain each with an example.

19. Write the algorithm for binary search. Validate the algorithm with a suitable data set.

20. Explain the following with suitable examples:(a)Radix sort (b) Insertion sort.

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D–1575

Sub. Code
31514

DISTANCE EDUCATION

M.C.A. DEGREE EXAMINATION, MAY 2023.

First Semester

DISCRETE MATHEMATICS

(CBCS 2020-21 Academic Year onwards)

Time : Three hours Maximum : 75 marks

PART A — ($10 \times 2 = 20$ marks)

Answer ALL the questions.

1. Define Well defined Formula.

2. What is Power Set?

3. State Relation.

4. Define composition.

5. What is one to one function?

6. Discuss inverse function with example.

7. Define semi group.

8. What is identity?

9. State Path.

10. Define Spanning Tree.

PART B — (5 × 5 = 25 marks)

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

11. (a) Construct the truth table for the statement formula $Pv7Q$.

Or

(b) Show that $S\ V\ R$ is tautologically implied by $(PVQ) \cap (P \to R) \cap (Q \to S)$.

12. (a) Let R be a relation on the set of positive real numbers so that its graphical representation consists of points in the first quadrant of the cartesian plane. What can we expect if R is (i) Reflexive (ii) Symmetric and (iii) Transitive?

Or

(b) Let A be a given finite set and $P(A)$ its power set. Let $\subseteq$ be the inclusion relation on the elements of $P(A)$. Draw Hasse diagrams of $(P(A), \subseteq)$ for $A = \{a\}$; $A = \{a,b\}$; $A = \{a,b,c\}$ and $A = \{a,b,c,d\}$.

13. (a) Let f: $R \to R, g : R \to R,$ where R is the set of real numbers be given by $f(x) = x\hat{}2 - 2$ and $g(x) = x + 4$ find fog and gof. State whether these functions are bijective or not.

Or

(b) Define the following: (i) recursive function (ii) Total function (iii) Partial function.

14. (a) Let $(Z,*)$ be an algebraic structure, where Z is the set of integers and the operation * is defined by $n * m =$ maximum of (n,m). Show that $(Z,*)$ is a semi group. Is $(Z,*)$ a monoid?

Or

(b) Show that the set of all positive rational numbers forms an abelian group under the composition * defined by $a * b = (ab)/2$.

15. (a) Define the following terms. Give one suitable example for each (i) Euler circuit (ii) Hamiltonian graph.

Or

(b) State and prove Euler's theorem on plane graphs.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. If $A = \{\alpha, \beta\}$ and $B = \{1,2,3\}$ what are *AXB, BXA, AXA, BXB* and *(AXB)∩(BXA)?*

17. Show that the relation $R = \{(a,a),(a,b),(b,a),(b,b),(c,c)\}$ on $A = \{a,b,c\}$ is an equivalence relation and find A/R also find partitions of *A*.

18. Find the inverse of the function $f(x) = e\hat{}x$ defined from *R* to *R*+.

19. Show that set of all non zero real numbers is a group with respect to multiplication.

20. Explain Eulerian and Hamiltonian graphs with examples, also draw the graphs of the following (a) Eulerian but not Hamiltonian (b) Hamiltonian but not Eulerian.

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D-1576

Sub. Code
31521

DISTANCE EDUCATION

M.C.A. DEGREE EXAMINATION, MAY 2023

Second Semester

ACCOUNTING AND FINANCIAL MANAGEMENT

(CBCS 2020-21 Academic Year onwards)

Time : Three hours Maximum : 75 marks

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

Answer ALL the questions.

1. List the important accounting conventions.

2. What are the four types of cash books?

3. Mention the objectives of Balance Sheet.

4. List out the advantages of using Trading a/c.

5. What are the two types of Assets?

6. State the advantages of subsidiary books.

7. What do you mean by purchase book?

8. What is the time value of money?

9. What is capital structure?

10. List the types of dividend decision.

SECTION B — (5 × 5 = 25 marks)

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

11. (a) "Agreement of Trial Balance is the conclusive proof of accuracy of accounting process" Comment.

Or

(b) Prepare the Profit and Loss Account, from the following balances of Mr. Selvam for the year ending 31.12.2007.

Office rent Rs. 3,000

Printing expenses Rs. 2,200

Tax, Insurance Rs. 1,400

Discount received Rs. 400

Advertisement Rs. 3,600

Salaries Rs. 8,000

Stationeries Rs. 2,400

Discount allowed Rs. 600

Travelling expenses Rs. 2,600

Gross Profit transferred from the Trading A/c Rs. 25,000.

12. (a) Explain the following :

(i) Specimen of Trading a/c

(ii) Specimen of Profit & Loss a/c.

Or

(b) Explain the specimen of Balance Sheet.

13. (a) Prepare a Petty cash book on the Unique Systems. From the following :

2005

Jan 1 Received Rs. 500 for Petty Cash

Jan 2 Paid bus fare 20

Jan 3 Paid for stationery 130

Jan 4 Paid for postage and telegrams 170

Jan 5 Paid for Cartage 100

Or

(b) From the following transactions, prepare necessary subsidiary books and prepare purchases a/c, sales a/c, purchase returns a/c and sales returns a/c.

2004 Nov,

1. Purchased 20 carpets from Madanlal at Rs. 800 each.

5. Mr. Champalal sold 15 special carpets to us @ Rs. 1,300 each.

9. Purchased from Mr. Kesarilal 10 carpets @ Rs. 1,000 each.

13. Sold 10 carpets to Mr. Chandanlal at Rs. 1,000 each.

16. Returned 2 carpets to Mr. Champalal.

25. Sold to Miss Fatima 8 special carpets at Rs. 1200 each.

28. Chandanlal returned 2 carpets to us.

14. (a) From the following information of Johnsons Ltd. on 31st March, 2003 you are required to prepare the Trading, Profit and Loss a/c and Balance Sheet :

	Rs.		Rs.
Opening Stock	5,000	Capital	89,500
Bills Receivable	22,500	Commission (Cr.)	2,000
Purchases	1,95,000	Return Outward	2,500
Wages	14,000	Trade Expenses	1,000
Insurance	5,500	Office Fixtures	5,000
Sundry Debtors	1,50,000	Cash in Hand	2,500
Carriage Inward	4,000	Cash at Bank	23,750
Commission (Dr.)	4,000	Rent & Rates	5,500
Interest on Capital	3,500	Carriage Outward	7,250
Stationery	2,250	Sales	2,50,000
Return Inward	6,500	Bills Payable	15,000
Creditors	98,250		
Closing Stock	12,500		

Or

(b) From the following information, you are required to prepare Trading, Profit and Loss Account and Balance Sheet:

	Dr.		Cr.
	Rs.		Rs.
Salaries	5,500	Creditors	9,500
Rent	1,300	Sales	32,000
Cash in hand	1,000	Capital	30,000
Debtors	40,000	Loans	10,000
Trade Expenses	600		

	Dr.	Cr.
	Rs.	Rs.
Purchases	25,000	
Advances	2,500	
Bank Balance	5,600	
	81,500	81,500

Additional Information :

(i) The Closing Stock amounted to Rs. 9,000

(ii) One month's is salary outstanding

(iii) One month's rent has been paid in advance

(iv) Provide 5 per cent for doubtful debts.

15. (a) Explain the concept of Break Even Analysis.

Or

(b) Explain the types of Budget.

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. From the following trial balance extracted from the books of Thiru. Venkatachalam as on 31.12.07. Prepare (a) Trading and Profit & Loss A/c and (b) Balance Sheet

Trial Balance as on 31.12.07

Debit Balances	Rs.	Credit balances	Rs.
Cash in hand	2,000	Capital	2,00,000
Machinery	60,000	Sales	2,54,800
Stock	50,000	Sundry Creditors	40,000
Bills receivable	1,600	Bank overdraft	22,000

Debit Balances	Rs.	Credit balances	Rs.
Sundry debtors	50,000	Return outwards	3,000
Wages	70,000	Discount received	1,800
Land	40,000	Bills payable	1,800
Carriage inwards	2,400		
Purchases	1,80,000		
Salaries	24,000		
Rent	4,000		
Postage	1,000		
Return inwards	3,200		
Drawings	10,000		
Furniture	18,000		
Interest	600		
Cast at bank	6,600		
	5,23,400		5,23,400

Stock as on 31.12.07 to Rs. 1,00,000

17. From the following Ledger Balance, prepare Trading and Profit & Loss Account and the Balance Sheet as on 31.12.2012.

	Rs.		Rs.
Capital	16,000	Cash at bank	2,600
Drawings	700	Salaries	800
Plant and machinery	12,000	Repairs	190
Horses and carts	2,600	Stock	1,600
Sundry Debtors	3,600	Rent	450
Sundry Creditors	2,600	Manufacturing expenses	150

	Rs.		Rs.
Purchases	2,000	Bills payable	2,350
Sales	6,200	Bad debts	500
Wages	800	Carriage	160
Commission earned	1,000		

Adjustments :

The Closing Stock was Rs. 1,600

Depreciate Plant and Machinery 10% and Horses and Carts 15%.

Unpaid Rent amounted Rs. 50

18. Write a detailed about on Final Accounts.

19. Write a detailed note on profit variances.

20. Explain cost sheet in detail.

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D–1561

Sub. Code
31522

DISTANCE EDUCATION

M.C.A. DEGREE EXAMINATION, MAY 2023.

Second Semester

RELATIONAL DATABASE MANAGEMENT SYSTEMS
(RDBMS)

(CBCS 2018 / 2020 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — ($10 \times 2 = 20$ marks)

Answer ALL questions

1. Write the levels of data abstraction.

2. What is the purpose of storage manager?

3. Define the term primary key.

4. Write the general form of SQL query for create a table.

5. What is meant by trigger?

6. What are the problems caused by redundancy?

7. When is the meaning of rolled back transaction?

8. What are the types of serializability?

9. Define the term Access Time.

10. What is hashing?

PART B — ($5 \times 5 = 25$ marks)

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

11. (a) Discuss the types of Data Models.

Or

(b) Describe the role of Database administrator.

12. (a) Write short notes on integrity constraints over relations.

Or

(b) Describe briefly about tuple relational calculus.

13. (a) Write short notes on aggregate operators, giving examples.

Or

(b) Give a brief account on BCNF.

14. (a) Discuss about Timestamp based protocols.

Or

(b) Describe various recovery techniques during transaction.

15. (a) Discuss on clustered indexing.

Or

(b) Write about B+ tree.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Construct an ER model for hospital management system.

17. Explain selection, projection and set operations giving examples.

18. What is normalization? Explain all the Normal forms.

19. What is concurrency control? How it is implemented in DBMS?

20. Explain in detail about various file organizations.

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D–1562

Sub. Code
31523

DISTANCE EDUCATION

M.C.A. DEGREE EXAMINATION, MAY 2023.

Second Semester

COMPUTER GRAPHICS

(CBCS 2018 – 2020 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — ($10 \times 2 = 20$ marks)

Answer ALL the questions.

1. What is the importance of computer graphics?

2. What is a video display device in computer graphics?

3. What is clipping in computer graphics?

4. Define the term shear.

5. What is quadratic surface in computer graphics?

6. What is the difference between hermite and Bezier curves?

7. How 3D reflection differs from 2D reflection?

8. Why viewing transformation is important in computer graphics?

9. What is depth sorting in computer graphics?

10. What is meant by key frame?

PART B — ($5 \times 5 = 25$ marks)

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

11. (a) List out the applications of computer graphics.

Or

(b) With a neat diagram, discuss about raster scan systems.

12. (a) Write short notes on translation operation with a neat diagram.

Or

(b) Explain about composite transformation with an example.

13. (a) Discuss briefly about parametric splines with a neat diagram.

Or

(b) Elaborate on constant intensity shading rendering method in computer graphics.

14. (a) Discuss briefly about 3D rotation operation with an example.

Or

(b) Writ short notes on perspective projection with an example.

15. (a) Discuss briefly about depth buffer method with a neat diagram.

Or

(b) Elaborate on animation languages in computer graphics.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Explain the working mechanism of cathode ray tube device with a neat sketch.

17. Discuss in detail about Cohen- Sutherland line clipping algorithm.

18. List out the properties of Bezier curves.

19. What is reflection in 3D transformation? Explain in detail about its types with necessary diagrams.

20. Discuss briefly about BSP tree with a neat sketch.

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D–1577

Sub. Code
31524

DISTANCE EDUCATION

M.C.A. DEGREE EXAMINATION, MAY 2023.

Second Semester

VISUAL PROGRAMMING WITH .NET

(CBCS 2020 – 2021 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL the questions.

1. What is visual studio?

2. Define share point projects.

3. What is skeleton code?

4. Write a C# program to find the biggest of two numbers.

5. Define event.

6. What is the purpose of clean operation?

7. Define database.

8. Define application state.

9. What is WPF?

10. Define silverlight.

SECTION B — ($5 \times 5 = 25$ marks)

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

11. (a) Differentiate Menu bar and Toolbar.

Or

(b) What are Office projects and database projects? Explain with suitable example.

12. (a) What is main method in C#? Explain with example.

Or

(b) Explain the concept of Namespace with suitable example.

13. (a) Explain the concept of Interface with suitable example.

Or

(b) Write a C# program to find the biggest of "n" numbers using array.

14. (a) What is breakpoint? Explain with suitable example.

Or

(b) How do you relate table with foreign key? Explain in detail.

15. (a) Explain the Data Grid control with suitable example.

Or

(b) Write short notes on Model View Controller.

SECTION C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. How do you create Windows project and Web project in visual studio? Explain with suitable example.

17. Explain the various looping structures are used in ASP.Net with suitable example.

18. Create a web application for employee information using ASP.Net controls.

19. List and explain any four types of windows are used for viewing application state in visual studio.

20. List and discuss any three layout controls are used in visual studio to size the screen.

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D–1578	Sub. Code
	31531

DISTANCE EDUCATION

M.C.A. DEGREE EXAMINATION, MAY 2023.

Third Semester

SOFTWARE ENGINEERING

(CBCS 2020 – 2021 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

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

Answer ALL the questions.

1. Define the term Software Engineering.

2. What is called process assessment?

3. What do you mean by requirement elicitation?

4. What are the benefits of flow-based modelling?

5. What are the components of data design?

6. Write down the golden rules of user interface design.

7. Write down the principles of software testing.

8. Differentiate between black box and white box testing.

9. What is risk refinement?

10. What is the outcome of formal technical reviews?

SECTION B — ($5 \times 5 = 25$ marks)

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

11. (a) Discuss on CMMI.

Or

(b) List the task regions in spiral model.

12. (a) Explain the various tasks of Requirement engineering.

Or

(b) Write short notes on scenario based modelling.

13. (a) Write about Design process and quality.

Or

(b) Describe the steps in User Interface design.

14. (a) Explain Integration testing strategy.

Or

(b) Explain the need for system testing.

15. (a) Compare proactive vs reactive risk strategies.

Or

(b) Discuss the activities of Software Quality assurance.

SECTION C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Describe the Evolutionary Software process models.

17. Describe the steps in building the analysis model.

18. Explain the various components of software architectural design.

19. Explain the testing strategies for object-oriented software.

20. Discuss about risk protection and risk refinement methods.

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D–1564

Sub. Code
31532/34032

DISTANCE EDUCATION

M.C.A./M.C.A.(Lateral Entry) DEGREE EXAMINATION,
MAY 2023.

Third Semester

OPERATING SYSTEM

(CBCS 2018 – 2020 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — ($10 \times 2 = 20$ marks)

Answer ALL questions.

1. Define the term OS.
2. What do you mean by system call?
3. What is IPC?
4. Mention the benefits of Multiprocessor scheduling.
5. What is semaphore?
6. How deadlocks are detected?
7. What is swapping?
8. Differentiate between paging and segmenting.
9. List out various File access methods.
10. What are called secondary storage devices?

PART B — ($5 \times 5 = 25$ marks)

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

11. (a) Describe the structure of OS.

Or

(b) List and explain the various services of OS.

12. (a) Explain the various operations on processes.

Or

(b) Explain Round Robin scheduling algorithm with an example.

13. (a) What are the requirements that satisfy critical section problem?

Or

(b) Explain the algorithm for deadlock prevention.

14. (a) Compare and contrast internal and external fragmentation.

Or

(b) Explain the Optimal Page Replacement algorithm.

15. (a) Write about File sharing and protection mechanism.

Or

(b) What is Disk scheduling? Explain.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Explain about Operating System design and Implementation.

17. Explain the various process states with neat sketch.

18. Describe any one of the deadlock avoidance algorithms.

19. Explain contiguous memory allocation method and its drawbacks.

20. Elaborate on Directory Implementation methods.

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D–1579

Sub. Code
31533

DISTANCE EDUCATION

M.C.A. DEGREE EXAMINATION, MAY 2023.

Third Semester

INTERNET AND JAVA PROGRAMMING

(CBCS 2020-21 Academic Year onwards)

Time : Three hours Maximum : 75 marks

PART A — ($10 \times 2 = 20$ marks)

Answer ALL the questions.

1. Write the meaning of Internet Relay Chat.

2. Mention the names of four internet browsers.

3. What is the role of java in internet applications?

4. What is the job of Bitwise operator?

5. Distinguish between static and final methods.

6. What is Wrapper Class?

7. Define the term Runnable interface.

8. How an applet differs from console based application?

9. What are streams in Java?

10. Write a note on Interactive Input and Output stream classes.

PART B — (5 × 5 = 25 marks)

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

11. (a) Discuss on internet conferencing techniques.

Or

(b) Write in detail about usenet newsgroup.

12. (a) Discuss about the features of Java.

Or

(b) Write a Java program to find the largest of three numbers.

13. (a) Briefly explain about method overloading in Java.

Or

(b) Illustrate the use of vector class with an example program.

14. (a) Elaborate on Thread priorities.

Or

(b) Describe the life cycle methods of an Applet.

15. (a) Write short notes on character stream classes.

Or

(b) Brief on the use of File reader class.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Bring out the uses of Email. Explain in detail about configuring and sending Email.

17. Compare while and do while loop with suitable examples.

18. How Java supports multiple inheritance? Explain with an example.

19. Explain bar charts in graphics class. How to implement it?

20. With an example program explain random access file handling.

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D–1580

Sub. Code
31534

DISTANCE EDUCATION

M.C.A. DEGREE EXAMINATION, MAY 2023.

Third Semester

COMPUTER NETWORKS

(CBCS 2020 – 2021 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL the questions.

1. What is computer network?

2. What is meant by digital signal?

3. Define the term block coding.

4. Give a note on stop – wait protocol.

5. What is message switching?

6. What is called dynamic routing?

7. What is UDP?

8. What is E-mail?

9. Why cryptography is important in network security?

10. Define the term DES.

SECTION B — ($5 \times 5 = 25$ marks)

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

11. (a) Describe line configuration and transmission modes.

Or

(b) Write short notes on analog and digital signal performance.

12. (a) Discuss about cyclic redundancy check.

Or

(b) Explain sliding window protocol.

13. (a) What is switching? Explain virtual circuit and datagram subnets.

Or

(b) Write short notes on static routing.

14. (a) Explain the architecture and functions of TCP.

Or

(b) How the files are transferred in transport layer? Discuss.

15. (a) Describe encryption models.

Or

(b) Explain about RSA.

SECTION C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. What is transmission media? Explain the working principles of transmission media.

17. Illustrate the data link layer protocols.

18. Elaborate on congestion control algorithms.

19. Explain in detail about Remote Procedure Call.

20. Explain about asymmetric key cryptography.

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D–1581

Sub. Code
31535

DISTANCE EDUCATION

M.C.A. DEGREE EXAMINATION, MAY 2023.

Third Semester

DATA MINING AND WAREHOUSING

(CBCS 2020 – 2021 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL the questions.

1. What are the different forms of knowledge?

2. What is meant by data visualization?

3. Define the term classification in data mining.

4. What is meant by decision tree?

5. Define the term Clustering.

6. Define the term Neural Network.

7. List any two tools used in data mining.

8. What do you mean by Text mining.

9. List the characteristics of big data.

10. What is the job of hadoop?

SECTION B — ($5 \times 5 = 25$ marks)

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

11. (a) Discuss on the hardware options for data warehouse.

Or

(b) Bring out the current trends in data mining.

12. (a) Write steps in dynamic itemset algorithm.

Or

(b) Explain about data partitioning in association rule discovery.

13. (a) Explain briefly about anyone hierarchical clustering technique.

Or

(b) Explain briefly about the working of Neural Network.

14. (a) Discuss on Text clustering.

Or

(b) Give a brief account on Knowledge mining.

15. (a) Write short notes on Big Data Analytics.

Or

(b) Explain the traditional approach to handle big data.

SECTION C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Explain in detail about KDD process.

17. Explain about Bayesian classification technique.

18. Explain CACTUS algorithm for clustering.

19. Explain about anyone of the visual data mining tools.

20. Describe the physical architecture of Hadoop.

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	31541

DISTANCE EDUCATION

M.C.A. DEGREE EXAMINATION, MAY 2023.

Fourth Semester

INTERNET OF THINGS (IoT)

(CBCS 2020 – 2021 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — ($10 \times 2 = 20$ marks)

Answer ALL questions.

1. What is the Internet Of Things (IoT)?

2. List out the advantages of IoT.

3. What is Bluetooth Low Energy?

4. Mention the mostly used IoT protocols.

5. How to run Raspberry pi in headless mode?

6. What is a library in Arduino?

7. List out the key features of Python.

8. What is PYTHON PATH?

9. What is slicing in Python?

10. What are functions in Python?

PART B — ($5 \times 5 = 25$ marks)

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

11. (a) Write short note on the characteristics of IoT.

Or

(b) Describe about IoT protocols.

12. (a) What are the differences between IoT and M2M?

Or

(b) Write short note on different types of sensors and its uses.

13. (a) What are the various types of antennas designed for IoT devices?

Or

(b) How IoT can be used in smart agriculture?

14. (a) Explain the bitwise operators in Python with examples.

Or

(b) What are the mutable built-in data types in python?

15. (a) Explain the python recursive function with a program to find out factorial of a number.

Or

(b) Explain the process of creating class and object in python with example.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Write brief note on Physical design and logical design of IoT.

17. Explain in detail the IoT design methodology.

18. Enumerate the various tools used for IoT.

19. Write a program to create a simple calculator using functions with arguments.

20. Discuss in detail about JSON and XML.

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D–1583

Sub. Code
31542

DISTANCE EDUCATION

M.C.A. DEGREE EXAMINATION, MAY 2023.

Fourth Semester

ARTIFICIAL INTELLIGENCE AND SOFT COMPUTING

(CBCS 2020 – 2021 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — ($10 \times 2 = 20$ marks)

Answer ALL questions.

1. What is an Artificial Intelligence?

2. Differentiate strong AI and weak AI.

3. Define Frame problem.

4. How to represent ISA relationship.

5. What is Soft Computing?

6. Write any two applications of ANN.

7. Differentiate Crisp set and Fuzzy set.

8. Specify various types offuzzy relations.

9. Write the elements of Genetic Algorithm.

10. Name any two applications of Genetic Algorithm.

PART B — ($5 \times 5 = 25$ marks)

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

11. (a) Describe the various problems of Artificial Intelligence.

Or

(b) Explicate the characteristics of production system.

12. (a) How to represent simple facts in predicate logic? Explain with an example.

Or

(b) Write the differences between forward and backward reasoning.

13. (a) Differentiate Soft computing and Hard computing.

Or

(b) Elaborate the concepts of McCulloch-Pitts model.

14. (a) Illustrate the various operations of Fuzzy Set.

Or

(b) Write a short note on Tolerance Relation.

15. (a) Explain the concepts of encoding in Genetic Algorithm.

Or

(b) Write the classifications of Genetic Algorithm.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Explain any two heuristic search techniques in detail.

17. Discuss the various approaches to knowledge representation.

18. Describe the Neural Network Architecture with a neat diagram.

19. Give a brief account on Fuzzification and Defuzzification.

20. Illustrate the various Genetic operators in detail.

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Sub. Code
31543

DISTANCE EDUCATION

M.C.A. DEGREE EXAMINATION, MAY 2023.

Fourth Semester

BIG DATA ANALYTICS AND R PROGRAMMING

(CBCS 2020 – 2021 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — ($10 \times 2 = 20$ marks)

Answer ALL questions.

1. What is Categorical Data?

2. What is the role of Secondary node in Hadoop environment?

3. What is Map Reduce?

4. Define filtering.

5. What is Column Store Database?

6. What is NoSQL?

7. What are the features of R languages?

8. Give an example for break statement.

9. Define package.

10. What is a list in R programming?

PART B — ($5 \times 5 = 25$ marks)

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

11. (a) Briefly Explain the following Concepts

(i) Structured Data

(ii) Unstructured data

Or

(b) Explain the various Services of HDFS in detail.

12. (a) Explain the applications of Nearest neighbor search.

Or

(b) List and explain the various Functions are used in Map Reduced algorithm.

13. (a) Differentiate SQL and NoSQL.

Or

(b) What is Key-Value Store Database? Explain with example.

14. (a) Explain the following with example in R

(i) if else

(ii) nested if

Or

(b) Write any R program for switch statement.

15. (a) Write a short note on creation of data frame.

Or

(b) Explain the concept of data reshaping in with example.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Briefly explain the physical architecture of Hadoop in detail.

17. Discuss the various distance methods are used to measure the distance in detail.

18. How do you store and process the data in the form document database? Explain in detail.

19. Explain the various looping structures are used in R language with example.

20. (a) How do you manipulate list elements? And

    (b) How do you extract data from data frame?. Explain with examples.

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DISTANCE EDUCATION

M.C.A. DEGREE EXAMINATION, MAY 2023.

Fourth Semester

MOBILE APPLICATION DEVELOPMENT

(CBCS 2020 – 2021 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Name any two mobile Platforms.

2. Define Framework.

3. What is utility apps?

4. Expand LBS.

5. State click streams.

6. State wire frames

7. What is midlet?

8. What is wireless toolkit?

9. What is AVD?

10. State emulator.

PART B — ($5 \times 5 = 25$ marks)

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

11. (a) Briefly explain the concept of networks.

Or

(b) Write short note on operating systems.

12. (a) What is mobile web widgets? Explain its features.

Or

(b) Elucidate the concept of Enterprise applications.

13. (a) How do you interpreting the mobile design? Explain in detail.

Or

(b) Write a short note on prototyping.

14. (a) Write brief note on MID let programming.

Or

(b) Describe about J2ME wireless toolkit.

15. (a) Write detailed note on google android.

Or

(b) Clarify the concept of Android SDK.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Explain the services of mobile eco system.

17. Describe in detail about Location based services.

18. Write brief note on mobile design tools.

19. Neatly sketch the concept of J2ME architecture.

20. Clarify the following

(a) Samsung Bada

(b) Nokia Symbian

(c) Microsoft windows Phone

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