D–5973	Sub. Code
	31511

DISTANCE EDUCATION

M.C.A. DEGREE EXAMINATION, DEC 2020.

First Semester

Computer Application

DIGITAL COMPUTER ORGANIZATION

(CBCS 2018–19 Academic Year onwards)

Time : Three hours Maximum : 75 marks

PART A — ($10 \times 2 = 20$ marks)

Answer ALL questions.

1. Convert $(634)_8$ to binary.

2. State the associative property to Boolean algebra.

3. Define the term 'Combinational logic'.

4. What is the job of D flip-flop?

5. What is meant by register?

6. Draw the basic functional units of a computer.

7. Specify few memory reference instructions.

8. Write the advantages of IOP.

9. What is the use of associative memory?

10. Define the term 'Control Word'.

PART B — ($5 \times 5 = 25$ marks)

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

11. (a) Write short notes on numeric and character codes.

Or

(b) State and explain De Morgan's theorem.

12. (a) Discuss the operation of full adder circuit with diagram and truth table.

Or

(b) Describe briefly about floating point representations.

13. (a) Brief on sub routine.

Or

(b) Write about instruction cycle.

14. (a) Discuss on general register organization.

Or

(b) Brief on input output interfaces.

15. (a) What is memory hierarchy? Explain briefly.

Or

(b) What is page fault? How it is handled?

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Simplify $F(w, x, y, z) = \Sigma(0, 2, 5, 6, 7, 8, 10)$ in product of sums.

17. Explain the different types of flip flops.

18. What are the three basic computer instructions? Give their formats and examples.

19. Explain different modes of data transfer to and form peripherals.

20. Explain the basic operations of cache memory.

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D–5972	Sub. Code
	31512

DISTANCE EDUCATION

M.C.A. DEGREE EXAMINATION, DEC 2020.

First Semester

Computer Application

OBJECT ORIENTED PROGRAMMING AND C++

(CBCS 2018–19 Academic Year onwards)

Time : Three hours Maximum : 75 marks

PART A — ($10 \times 2 = 20$ marks)

Answer ALL questions.

All questions carry equal marks.

1. What are the features of object oriented programming?

2. List out any four manipulators with its meaning.

3. What is private member function?

4. Define the term 'this' pointer.

5. What is meant by type conversion? Give an example.

6. List any two rules for operator overloading.

7. List out the various classes involved in file stream operations.

8. What do you mean by 'Template'?

9. What are the most common types of bugs?

10. What are the advantages of using exception handling mechanism in a program?

PART B — ($5 \times 5 = 25$ marks)

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

All questions carry equal marks.

11. (a) Write short note on :

(i) Encapsulation

(ii) Polymorphism

(iii) Data abstraction.

Or

(b) Describe in detail about formatted console I/O operations in C++.

12. (a) How to specify a class? Explain with example.

Or

(b) Explain in detail about friend function with example.

13. (a) How to achieve operator overloading through friend function? Explain.

Or

(b) Discuss on pure virtual function with suitable program.

14. (a) Write a C++ program to illustrate the concept of function template with multiple arguments.

Or

(b) Explain the various ways to open a file with suitable examples.

15. (a) Write a C++ program to handle various types of exceptions.

Or

(b) What are uncaught exceptions? Write the functions to handle uncaught exceptions.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

All questions carry equal marks.

16. Explain in detail about unformatted I/O operations in C++.

17. Explain briefly about default and parameterized constructors with suitable example.

18. Explain various types of inheritance with neat diagram. Write a program to illustrate multiple inheritance.

19. Describe the class templates in C++. Illustrate with examples.

20. Elaborate on exception handling mechanism with proper syntax and example program.

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D–5971

Sub. Code
31513

DISTANCE EDUCATION

M.C.A. DEGREE EXAMINATION, DEC 2020.

First Semester

Computer Application

DATA STRUCTURE AND ALGORITHMS

(CBCS 2018–19 Academic Year onwards)

Time : Three hours Maximum : 75 marks

PART A — ($10 \times 2 = 20$ marks)

Answer ALL questions.

All questions carry equal marks.

1. Write down the definition of data structure.

2. What are the features of an efficient algorithm?

3. List down any four applications of data structures.

4. What is the need for header?

5. Write the order of nodes visited in in-order traversal of a binary tree.

6. What is meant by the path length in a tree?

7. What is searching? What are the different kinds of search technique?

8. State the applications of linear and binary search techniques.

9. What is meant by sorting?

10. What is the complexity of insertion sort?

PART B — ($5 \times 5 = 25$ marks)

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

All questions carry equal marks.

11. (a) Write short notes on time and space complexity of algorithms.

Or

(b) Explain in detail about primitive data types.

12. (a) How to insert and delete nodes in a list? Explain briefly.

Or

(b) What are circular queues? Write down the routines for inserting and deleting elements in a circular queue.

13. (a) Explain the various types of binary tree with suitable example.

Or

(b) Explain insertion and deletion operation on binary tree with an example.

14. (a) Write an algorithm to perform binary search.

Or

(b) Using the linear search, search the number 26 in the following list of numbers with step by step illustration 11, 8, 18, 26, 33, 93.

15. (a) What is quick sort? Sort the following array using quick sort method

24, 56, 47, 35, 10, 90, 82, 31.

Or

(b) Explain the process of selection sort with suitable example.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

All questions carry equal marks.

16. Describe the storage structure of an array. Also explain multidimensional array.

17. Discuss the working principle of stack.

18. Explain in detail the various hashing techniques.

19. Compare working of binary search and linear search technique with an example.

20. Write Radix sort algorithm and show how it processes the following input :

31, 41, 59, 26, 53, 58, 97.

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D–5069	Sub. Code
	31521

DISTANCE EDUCATION

M.C.A. DEGREE EXAMINATION, DEC 2020.

Second Semester

Computer Application

SOFTWARE ENGINEERING

(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 called software engineering?

2. What is a process framework in software engineering?

3. Define the term requirement analysis.

4. What is the importance of requirement modeling?

5. Why evaluation is important in design?

6. What is architectural style in software engineering? Give an example.

7. Why debugging is needed?

8. What is unit testing?

9. What are the attributes of software engineering?

10. What is the objective of risk identification?

PART B — ($5 \times 5 = 25$ marks)

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

11. (a) Explain the role and characteristics of software in software engineering.

Or

(b) Elaborate the waterfall process model with its structure.

12. (a) Discuss about the elements of analysis model and explain how to build it.

Or

(b) What is object oriented analysis? Explain in detail.

13. (a) What is design model? Explain with its structure.

Or

(b) Discuss about architectural styles and patterns in system design.

14. (a) Differentiate between Black – Box and White – Box testing.

Or

(b) Discuss about software quality and list out its characteristics.

15. (a) What are software risks? Explain how to identify it.

Or

(b) Explain the following :

(i) Software quality assurance

(ii) Software reviews.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Explain the incremental process model and the evolutionary process model.

17. Discuss about the scenario based modeling with its structure.

18. Explain in detail about user interface analysis and design.

19. Discuss in detail about the classification of software metrics.

20. What are reactive and proactive risk strategies? Explain the difference between them.

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D–5070	Sub. Code
	31522

DISTANCE EDUCATION

M.C.A. DEGREE EXAMINATION, DEC 2020.

Second Semester

RELATIONAL DATABASE MANAGEMENT SYSTEMS
(RDBMS)

(CBCS 2018–19 Academic Year onwards)

Time : Three hours Maximum : 75 marks

PART A — ($10 \times 2 = 20$ marks)

Answer ALL questions.

1. Define the terms instance and schema.

2. List the database languages.

3. Define the terms primary key and foreign key.

4. How the renaming operator is used?

5. List out the operators used in comparison.

6. Expand and write a note on the term BCNF.

7. What is meant by transaction?

8. What is buffer management?

9. Why index in used?

10. What is meant by clustered index?

PART B — (5 × 5 = 25 marks)

Answer ALL questions.

11. (a) Compare database system with file system.

Or

(b) Explain the different roles of database administrators and end users.

12. (a) Illustrate destroying/altering tables and views.

Or

(b) Write about selection and projection set operations.

13. (a) Write the general form of basic SQL query.

Or

(b) Brief on multivalued dependencies.

14. (a) Illustrate ACID properties giving examples.

Or

(b) Write short notes on remote backup systems.

15. (a) Describe hash based indexing.

Or

(b) Brief on B+ trees.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Explain the concepts of ER model through illustrations.

17. Discuss on : Tuple relational calculus and domain relational calculus.

18. Demonstrate normal forms with example.

19. Give detailed notes on lock based protocols.

20. Explain in detail about file organization and indexing.

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D–5071	Sub. Code
	31523

DISTANCE EDUCATION

M.C.A. DEGREE EXAMINATION, DEC 2020.

Second Semester

Computer Application

COMPUTER GRAPHICS

(CBCS 2018–19 Academic Year onwards)

Time : Three hours Maximum : 75 marks

PART A — ($10 \times 2 = 20$ marks)

Answer ALL questions.

1. Define the term frame buffer.

2. What is called a bitmap?

3. What is called reflection?

4. Define shear transformation in 2D space.

5. Define the space partitioning representation of polygon surfaces.

6. What are Bezier curves?

7. How can we define viewing in 3D space?

8. What is projection?

9. What are binary space partition trees?

10. Define the term animation.

PART B — (5× 5 = 25 marks)

Answer ALL questions.

11. (a) Discuss in brief about the functioning of a cathode ray tube with necessary diagrams.

Or

(b) What are input devices? Explain briefly.

12. (a) What are composite transformation? Explain.

Or

(b) Briefly discuss about the window to viewport coordinate transformation with its structure.

13. (a) List out the advantages and disadvantages of polygon meshes.

Or

(b) Write short notes on the spline representation of 3D objects.

14. (a) Explain the scaling transformation of object in a 3D space.

Or

(b) Write short notes on viewing pipeline with its structure.

15. (a) Discuss in brief about the scan line method with its structure.

Or

(b) Write short notes on depth sorting method.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Explain the following algorithms with its steps :

    (a) Boundary – fill algorithm

    (b) Flood – fill algorithm.

17. Describe the following with its structure :

    (a) Point clipping algorithm

    (b) Sutherland-Hodgeman polygon clipping algorithm.

18. Elaborate on B-Spline curves with its structure and properties.

19. Discuss in detail about perspective projections with necessary diagrams.

20. Explain the following :

    (a) Computer animation languages

    (b) Animation motion specifications.

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D–5072

Sub. Code
31531/34031

DISTANCE EDUCATION

M.C.A./M.C.A. (Lateral Entry) (Computer Application)
DEGREE EXAMINATION, DEC 2020.

Third Semester

DISCRETE MATHEMATICS

(CBCS 2018-2019 Academic Year onwards)

Time : 3 hours Maximum : 75 marks

PART A — ($10 \times 2 = 20$ marks)

Answer ALL questions.

1. Construct the truth for $P \wedge \neg P$.

2. Obtain disjunctive normal form of $P \wedge (P \to Q)$.

3. Show by means of an example that $\rho(A) \cup \rho(B) \neq \rho(A \cup B)$.

4. Let $R = \{\langle x, 2x\rangle | x \in I\}$ and $S = \{\langle x, 7x\rangle | x \in I\}$. Prove that $R \circ S = S \circ R$.

5. Let $*$ be a binary operation on N defined by $x * y = x$. Show that $*$ is not commutative but it is associative.

6. Let $f : R \to R$ be given by $f(x) = x^2$ and $g : R - \{2\} \to R$ be given by $g(x) = x/(x-2)$. Find $g \circ f$.

7. Show that N is a semigroup under the operation $x * y = \max\{x, y\}$.

8. Define normal subgroup with an example.

9. What is geodesic?

10. 3 dice are rolled. What is the probability that there is atleast one 6.

PART B — ($5 \times 5 = 25$ marks)

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

11. (a) Show that
$((P \wedge Q) \wedge \neg(\neg P \wedge (\neg Q \vee \neg R))) \vee (\neg P \wedge \neg Q) \vee (\neg P \wedge \neg R)$
is a tautology.

Or

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

12. (a) Given $S = \{1,2,3,4\}$ and a relation R on S defined by $R = \{\langle 1,2\rangle, \langle 4,3\rangle, \langle 2,2\rangle, \langle 2,1\rangle, \langle 3,1\rangle\}$ show that R is not transitive. Find a smallest relation $R_1 \supseteq R$ such that R_1 is transitive.

Or

(b) Let $X = \{1,2,\ldots,7\}$ and $R = \{\langle x, y\rangle \mid x - y \text{ is divisible by } 3\}$. Show that R is an equivalence relation. Draw the graph of R.

13. (a) If $A = \{1,2,\ldots,n\}$, show that any function from A to A which is one-to-one must be onto and vice versa.

Or

(b) Show that $A \cap (B \cup C) = (A \cap B) \cup (A \cap C)$.

14. (a) For any commutative moniod $\langle M,* \rangle$, show that the set of idempotent elements of M forms a submoniod.

Or

(b) Let $\langle G,* \rangle$ be a finite cyclic generated by a. If G is of order n, then show that n is the least positive integer such that $a^n = e$ and $G = \{a, a^2, a^3, \ldots, a^n\}$.

15. (a) In a simple digraph $G = \langle V, E \rangle$, show that every node of the digraph lies in exactly one strong component.

Or

(b) A random variable X has the probability density function $f(x) = \dfrac{c}{1+x^2}$, $-\infty < x < \infty$. Determine c and the mean.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Obtain the principal conjunctive normal form of the formula S given by $(\neg P \to R) \wedge (Q \rightleftharpoons P)$.

17. Let $P = \{\langle 1,2 \rangle, \langle 2,4 \rangle, \langle 3,3 \rangle\}$ and $Q = \{\langle 1,3 \rangle, \langle 2,4 \rangle, \langle 4,2 \rangle\}$. Find $P \cup Q$, $P \cap Q$, $D(P)$, $D(Q)$, $D(P \cup Q)$, $R(P)$, $R(Q)$, and $R(P \cap Q)$. Show that $D(P \cup Q) = D(P) \cup D(Q)$ and $R(P \cap Q) \subseteq R(P) \cap R(Q)$.

18. If $f : X \to Y$ and $g : Y \to X$. Show that $g = f^{-1}$ if and only if $g \circ f = I_x$ and $f \circ g = I_y$.

19. Prove that every finite group of order n is isomorphic to a permutation group of degree n.

20. The contents of 3 urns are

Urn I : 1-white, 3-red, 2-black balls

Urn II : 3-white, 1-red, 1-black balls

Urn III : 3-white, 3-red, 3-black balls

Two balls are chosen from a randomly selected urn. If the balls are 1 white and 1 red ball what is the probability that they come from Urn II?

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D–5073	Sub. Code
	31532/ 34032

DISTANCE EDUCATION

M.C.A./M.C.A.(Lateral Entry) DEGREE EXAMINATION, DEC 2020.

Third Semester

Computer Application

OPERATING SYSTEM

(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 operating system.

2. Name the various operating system services.

3. What is a process?

4. What is the purpose of following system calls? : Signal ( ) and Wait ( ).

5. What is semaphore?

6. What are the conditions under which a deadlock situation may arise?

7. Define the term swapping.

8. What is meant by segmentation?

9. What do you mean by file?

10. Give four examples for secondary storage devices.

PART B — (5 × 5 = 25 marks)

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

11. (a) Describe the structure of operating system.

Or

(b) List and explain briefly about the operating system services.

12. (a) What are the various process states? Explain them with the help of a neat diagram.

Or

(b) Write short notes on multiple processor scheduling.

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

Or

(b) Write short notes on deadlock prevention.

14. (a) Discuss on partitioned memory allocation.

Or

(b) Explain the optimal page replacement algorithm.

15. (a) Describe various file operations.

Or

(b) What is disk scheduling? Explain.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. What do you mean by multiprogramming? How it differs from time-sharing operating system?

17. Explain the following scheduling algorithms :

    (a) Round Robin

    (b) Shortest-job-first.

18. Describe about any one of the deadlock avoidance algorithms.

19. Explain the various techniques used in demand paged memory management.

20. Discuss on directory implementation methods.

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D–5074	Sub. Code
	31533/ 34033

DISTANCE EDUCATION

M.C.A./M.C.A.(Lateral Entry) DEGREE EXAMINATION, DEC 2020.

Third Semester

Computer Application

OBJECT ORIENTED ANALYSIS AND DESIGN

(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 object.

2. Why reusability is important?

3. What is meant by 'Use case'?

4. What is the importance of UML?

5. Why analysis is a difficult task?

6. What is the basic activity in designing an application?

7. What are public and private protocols?

8. Expand and write a note on the term DDL.

9. Mention some of the modes that can be used in the user interface.

10. What is meant by test plan?

PART B — ($5 \times 5 = 25$ marks)

Answer ALL questions.

11. (a) Write short notes on the elements of object model.

Or

(b) How quality classes and object are built?

12. (a) Briefly describe the Booch system development process.

Or

(b) Describe briefly about class diagram.

13. (a) Write the guidelines for developing effective documentation.

Or

(b) What are the common association patterns? Explain.

14. (a) Describe briefly about single and multiple inheritance.

Or

(b) What are the different types of servers? Briefly explain them.

15. (a) Write the impact of object oriented testing.

Or

(b) Give a brief account of foundation class library.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Describe the system development life cycle.

17. Explain Rambaugh object modeling techniques.

18. Explain noun phrase approach in detail.

19. Discuss on access layer design.

20. Explain about client/server computing.

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D–5075

Sub. Code
31541/ 34041

DISTANCE EDUCATION

M.C.A./M.C.A.(Lateral Entry) DEGREE EXAMINATION, DEC 2020.

Fourth Semester

ACCOUNTING AND FINANCIAL MANAGEMENT

(CBCS 2018–19 Academic Year onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. What is book keeping?

2. What is a journal?

3. What is net profit?

4. What are financial statements?

5. What is break-even point?

6. What is standard costing?

7. What is semi-variable cost?

8. What is time value of money?

9. What is payback period?

10. What is a dividend?

PART B — (5 × 5 = 25 marks)

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

11. (a) Explain any five accounting concepts.

Or

(b) From the following ledger balances, prepare trial balance.

Particulars	Rs.	Particulars	Rs.
Opening stock	30,000	Purchases	3,00,000
Closing stock	14,000	Debtors	1,20,000
Cash	3,000	Discount allowed	3,400
Bank	5,600	Creditors	90,000
Sales	4,20,000	Salaries	42,000
Rent	9,000	Postage	4,500
Taxes	1,500	Machinery	1,20,000
Drawings	20,000	Purchase returns	6,000
Sales returns	9,000		

12. (a) "Cost volume profit analysis" is helpful for profit planning – Explain.

Or

(b) From the following information, compute different direct material variances :

	Standard			Actual		
	Qty. Kgs.	Unit Price	Total	Qty. Kgs.	Unit Price	Total
		Rs.	Rs.		Rs.	Rs.
Material A	10	2.00	20.00	5	3.00	15.00
Material B	20	3.00	60.00	10	6.00	60.00
Material C	20	6.00	120.00	15	5.00	75.00
Total	50		200.00	30		150.00

13. (a) The following information relating to a company is given :

Sales	Rs. 4,00,000
Fixed cost	Rs. 1,80,000
Variable cost	Rs.2,50,000

Ascertain how much the value of sales must be increased for the company to break-even.

Or

(b) What is zero base budgeting? How is it prepared?

14. (a) In what ways is the wealth maximisation objective is superior to the profit maximisation objective? Explain.

Or

(b) Why do individuals show a time preference for money? Give reasons for such preference.

15. (a) A firm is considering the purchase of a machine. Two machines A and B each costing Rs. 50,000. Each machine has an expected life of 5 years. Earnings after taxation are expected to be as follows.

	Cash Inflows	
Year	Project A	Project B
1	15,000	5,000
2	20,000	15,000
3	25,000	20,000
4	15,000	30,000
5	10,000	20,000

Calculate the pay-back period and suggest which machine should be purchased.

Or

(b) Bring out different types of capital cost computation.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. From the following balances as at 31st March 2004, prepare a trading, profit and loss account and balance sheet.

	Rs.		Rs.
Capital	30,000	Debtors	17,078
Cash	3,418	Sales	29,360
Purchases	35,640	Return outwards	1,756
Creditors	3,920	Drawings	2,600
Rent	700	Rent owning (Cr.)	160
B/P	2,690	Interest and discount (Dr.)	270
Furniture	500	Salaries	1,200
B/R	3,560	Return inwards	2,460
Trade charges	460		

Additional information :

(i) Closing stock Rs. 12,800

(ii) Depreciation on furniture 10% p.a.

(iii) Provide for doubtful debts 5% on debtors

(iv) Goods costing Rs. 500 were used by the owner.

17. From the following comparative balance sheet of Kumarasamy Ltd., as on June 30, 2006 and June 30, 2007 you are required to prepare.

(a) A statement of changes in working capital

(b) Funds flow statement.

Liabilities	2006 Rs.	2007 Rs.	Assets	2006 Rs.	2007 Rs.
Share capital	1,80,000	2,00,000	Goodwill	24,000	20,000
Reserve fund	28,000	36,000	Buildings	80,000	72,000
P and L A/c	39,000	24,000	Machinery	74,000	72,000
Trade creditors	16,000	10,800	Investments	20,000	22,000
Bank overdraft	12,400	2,600	Inventories	60,000	50,800
Provision for taxation	32,000	34,000	Debtors	40,000	44,400
Provision for doubtful debts	3,800	4,200	Cash	13,200	30,400
	3,11,200	3,11,600		3,11,200	3,11,600

Additional information :

(i) Depreciation charge on machinery was Rs. 8,000 and on building Rs. 8,000.

(ii) Interim dividend paid on January 2007 was Rs. 15,000.

(iii) Provision of Rs. 10,000 was made for taxation during the year ending 30th June 2007.

18. ABC limited, a newly started company wishes to prepare cash budget from January. Prepare a cash budget for the first six months from the following estimated revenue and expenses.

Month	Total Sales	Materials	Wages	Overheads	
				Production	Selling and Distribution
	Rs.	Rs.	Rs.	Rs.	Rs.
January	20,000	20,000	4,000	3,200	800
February	22,000	14,000	4,400	3,300	900
March	28,000	14,000	4,600	3,400	900
April	36,000	22,000	4,600	3,500	1,000
May	30,000	20,000	4,000	3,200	900
June	40,000	25,000	5,000	3,600	1,200

Cash balance on 1st January was Rs. 10,000. New machinery is to be installed at Rs. 20,000 on credit, to be repaid by two equal instalments in March and April.

Sale commission @5% on total sales is to be paid within a month of following actual sales.

Rs. 10,000 being the amount of 2nd call may be received in March. Share premium amounting to Rs. 2,000 is also obtainable with the 2nd call.

Period of credit allowed by suppliers	2 months
Period of credit allowed by customers	1 month
Delay in payment of overheads	1 month
Delay in payment of wages	½ month

Assume cash sales to be 50% of total sales.

19. Briefly explain the factors affecting working capital requirements of a firm.

20. Vignesh Ltd. Is considering the purchase of new machine. Two alternative machines A and B having an initial cost of Rs. 4,00,000 and requiring Rs. 20,000 as additional working capital at the end of first year. Earnings after taxation are expected to be as follows.

Year	Cash inflows		Present value at 10%
	Machine A	Machine B	
1	40,000	1,20,000	0.91
2	1,20,000	1,60,000	0.83
3	1,60,000	2,00,000	0.75
4	2,40,000	1,20,000	0.68
5	1,60,000	1,20,000	0.62

Compare the profitability of the machines and state which alternative you consider financially preferable.

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D–5076

Sub. Code
31542/ 34042

DISTANCE EDUCATION

M.C.A./M.C.A.(Lateral Entry) DEGREE EXAMINATION, DEC 2020.

Fourth Semester

COMMUNICATION SKILLS

(CBCS 2018–19 Academic Year onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Mention any two principles of effective communication.
2. What is downward communication?
3. Write a set of two apologizing expressions.
4. How do you introduce yourself before an interview panel?
5. What is the purpose of a presentation?
6. State the importance of audio-visual aids in presentation.
7. Differentiate GD from debate.
8. What is mock interview?
9. Define agenda.
10. In what ways a memo different from a letter?

PART B — ($5 \times 5 = 25$ marks)

Answer ALL questions.

11. (a) How does language act as a barrier to effective communication?

Or

(b) Upward communication is very useful but very difficult. Suggest some methods of increasing its effectiveness.

12. (a) List the various dimensions of verbal communication.

Or

(b) State the etiquettes one must follow wile making telephone conversations.

13. (a) You are supposed to address a group of audience what suggestions will help in planning for the presentation.

Or

(b) Explain paralinguistic features of effective speaking.

14. (a) Describe the objectives and types of interviews.

Or

(b) Explain the participation techniques in group communication.

15. (a) Prepare your curriculum vitae.

Or

(b) Prepare a report on the annual prize distribution function which was held in your institution.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Comment on the various levels of communication.

17. Explain the types and importance of non-verbal communication.

18. Elaborate on the steps to be followed for an effective presentation.

19. Guiding and controlling group discussion is an art. Discuss.

20. 'A report is a logical presentation of facts and information'. Discuss the statement with suitable examples.

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D–5077	Sub. Code
	31543/ 34043

DISTANCE EDUCATION

M.C.A./M.C.A.(Lateral Entry) DEGREE EXAMINATION, DEC 2020.

Fourth Semester

Computer Application

INTERNET AND JAVA PROGRAMMING

(CBCS 2018–19 Academic Year onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. What is called domain name system?

2. List out the names of any four web browsers.

3. Is java a platform independent language? Justify your answer.

4. Write down the four categories of data types.

5. Define the term class in java.

6. What is meant by array in java? Write down the syntax of array declaration in java.

7. Write down the syntax to add the applet tag in HTML file.

8. What is meant by multi threaded programming?

9. What is meant by stream in java?

10. What is called byte stream in java?

PART B — (5 × 5 = 25 marks)

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

11. (a) Write short notes on the usage of Telnet.

Or

(b) Explain about IRC.

12. (a) Explain about type conversions in java.

Or

(b) Describe the structure of java program and features of JVM.

13. (a) How to create a package in java? Explain with suitable example.

Or

(b) Write a java program to add two 2-dimensional matrices.

14. (a) Explain about types of errors and exceptions in java.

Or

(b) Describe the purpose of thread methods in multi threaded programming.

15. (a) Explain about methods of InputStream methods in java.

Or

(b) Explain about file class and its methods.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Discuss about the types of connections to connect to the internet.

17. Discuss about features of java. How java differs from C and C++.

18. Explain in detail about types of constructors with suitable examples.

19. Explain in detail about life cycle of thread.

20. Write a java program to create, read and write file using I/O stream classes.

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D–5078	Sub. Code
	31551/ 34051

DISTANCE EDUCATION

M.C.A./M.C.A.(Lateral Entry) DEGREE EXAMINATION, DEC 2020.

Fifth Semester

Computer Application

COMPUTER NETWORKS

(CBCS 2018–19 Academic Year onwards)

Time : Three hours Maximum : 75 marks

PART A — ($10 \times 2 = 20$ marks)

Answer ALL questions.

1. What are the various transmission modes in computer network?

2. Which OSI layer deals with the control operations of subnet?

3. What is the use of stop and wait protocol?

4. What are called carrier sense protocols?

5. What is called switching?

6. Why flooding occurs during packet transmission?

7. What is the use of fragment offset in IP Header?

8. What is SNMP?

9. What is substitution cipher?

10. What is the difference between DES and AES cryptography techniques?

PART B — ($5 \times 5 = 25$ marks)

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

11. (a) Describe the LAN topology with neat sketch.

Or

(b) Write short notes on Twisted pair cables.

12. (a) What are called collision free protocols? Explain.

Or

(b) Brief on ALOHA.

13. (a) Explain datagram subnet in detail.

Or

(b) Explain link state routing.

14. (a) Explain the steps involved in releasing a connection in transport layer.

Or

(b) Write short notes on remote file access.

15. (a) List out the cryptographic principles.

Or

(b) Describe AES algorithm in cryptography.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Describe the various topologies of computer networks.

17. Explain the following :

(a) Stop and wait protocol.

(b) Cyclic redundancy check.

18. Explain the following routing algorithms.

(a) Hierarchical routing.

(b) Dynamic routing.

19. Explain connection oriented vs connectionless services.

20. Describe the encryption model with neat sketch.

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D–5079	Sub. Code
	31552/ 34052

DISTANCE EDUCATION

M.C.A./M.C.A.(Lateral Entry) DEGREE EXAMINATION, DEC 2020.

Fifth Semester

DATA MINING AND WAREHOUSING

(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 called data warehousing?

2. What is data quality and mention its importance in data mining?

3. What do you mean by back propagation in data mining?

4. What is frequent item set?

5. What is called an outlier in data mining?

6. What are the uses of neural network?

7. What is web mining?

8. Write a note on spatial mining.

9. What is the purpose of hadoop?

10. Define the term big data.

PART B — ($5 \times 5 = 25$ marks)

Answer ALL questions.

11. (a) Write short notes on star schema in data warehousing.

Or

(b) Exemplify about the current trends in data mining.

12. (a) Elucidate about the advantages of using a decision tree.

Or

(b) Explain briefly about Bayesian classification algorithm.

13. (a) Elucidate about FP tree growth algorithm.

Or

(b) Write short notes on pincher search algorithm.

14. (a) Write about the techniques involved in temporal mining.

Or

(b) Write about techniques involved in text mining.

15. (a) What are the characteristics of big data?

Or

(b) What are the different types of data come under big data?

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Explain in detail about the architecture of data warehouse.

17. Explain in detail about apriori algorithm used in association rule mining.

18. Explain in detail about back propagation algorithm.

19. Explain in detail about the various data mining tools and technologies available in internet.

20. Explain in detail about hadoop ecosystem.

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D–5080	Sub. Code
	31553/ 34053

DISTANCE EDUCATION

M.C.A./M.C.A.(Lateral Entry) DEGREE EXAMINATION, DEC 2020.

Fifth Semester

Computer Application

VISUAL PROGRAMMING WITH .NET

(CBCS 2018–19 Academic Year onwards)

Time : Three hours Maximum : 75 marks

PART A — ($10 \times 2 = 20$ marks)

Answer ALL questions.

All questions carry equal marks.

1. What is the use of tool bar?
2. What is database project?
3. Write an example to demonstrate VB namespace.
4. What is meant by parameter passing?
5. What is the main feature of solution explorer?
6. How will you build a project?
7. Define the term breakpoint.
8. What is the purpose of using foreign key?
9. Write a procedure to add columns and rows in a Grid.
10. List out the object tag parameters for Silverlight.

PART B — ($5 \times 5 = 25$ marks)

Answer ALL questions.

All questions carry equal marks.

11. (a) Write short notes on :

(i) Tool box

(ii) Solution explorer

(iii) Status bar.

Or

(b) Describe windows and web projects.

12. (a) Explain in detail about VS code editor.

Or

(b) How to create a class? Explain class inheritance with example.

13. (a) Write a program to implement the interface.

Or

(b) Write short notes on :

(i) Assembly name

(ii) Default namespace

(iii) Target framework

(iv) Output type.

14. (a) Write short notes on :

(i) Immediate window

(ii) Call stack window.

Or

(b) Briefly explain about stored procedure.

15. (a) Explain about grid and DockPanel laouts.

Or

(b) How to communicate with a WCF service? Explain in detail.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

All questions carry equal marks.

16. Managing Vs Windows – Discuss in detail.

17. Discuss about coding fields and properties.

18. Explain the use of class designer with example.

19. Explain in detail about the following :

(a) Create a database

(b) Add tables in a database.

20. Demonstrate working with data in WPF.

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D–6488

Sub. Code
31561/34061

DISTANCE EDUCATION

M.C.A./M.C.A (Lateral entry) DEGREE EXAMINATION, DECEMBER 2020.

Sixth 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. Define the term "Cloud".
2. What is the use of Google App Engine?
3. What are Community Groups?
4. List some applications used to collaborating on Event Managment.
5. What are the advantages of online calendar applications?
6. Define vertebase.
7. What are the levels of federation in cloud?
8. What are the key Features of using private cloud computing Infrastructure?
9. What are the types of open sources cloud services?
10. List the open source cloud platforms.

PART B — (5 × 5 = 25 marks)

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

11. (a) Describe briefly about the properties and benefits of cloud computing.

Or

(b) Write short note on cloud computing services.

12. (a) Describe briefly about "Cvent" Event Management application in cloud.

Or

(b) Brief on online scheduling applications available in the cloud computing.

13. (a) What are the features of web conferencing tools? Explain briefly.

Or

(b) Discuss on online planning and task management in cloud computing.

14. (a) Explain the Risk involved in storing Data in the clouds.

Or

(b) Describe briefly the use of cloud storage providers.

15. (a) What is opennebula? Explain briefly its components and deployment model.

Or

(b) What are the features of "Nimbus" open source Iaas cloud computing software? Explain briefly.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions:

16. What is cloud computing? 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 in detail.

18. Describe in detail, the Event Management Applications available in cloud with neat sketch.

19. Explain in detail, architecting cloud applications using Amazon Web Services Cloud.

20. Explain in detail about the open nebula open source cloud platform and its components.

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D–6489

Sub. Code
31562/34062

DISTANCE EDUCATION

M.C.A./M.C.A. (Lateral) DEGREE EXAMINATION,
DECEMBER 2020.

Sixth Semester

Computer Application

SOFT COMPUTING

(CBCS 2018 – 19 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. What is soft computing?
2. Write the characteristics of Artificial Neural Network.
3. List the types of learning.
4. What is local minima and global minima?
5. Define fuzzy set.
6. What is a membership function?
7. What is union in fuzzy set operation?
8. Define fuzzy logic.
9. Mention the role of fitness function in Genetic Algorithm.
10. State the operators of Genetic Algorithm.

PART B — (5 × 5 = 25 marks)

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

11. (a) Specify the constituent of soft computing techniques.

Or

(b) Sketch the model of artificial neuron.

12. (a) Write short notes on Adaline and Madaline network.

Or

(b) Discuss on Hopfield network.

13. (a) Describe the properties of fuzzy sets.

Or

(b) Give a brief account on Fuzzy Composition.

14. (a) Brief on Formation of Fuzzy rules.

Or

(b) Describe about Fuzzy decision making.

15. (a) How Genetic Algorithm differs from traditional algorithm?

Or

(b) List and explain the different cross over operators in GA.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Explain the fundamental models of ANN.

17. Discuss on unsupervised learning networks.

18. What is Defuzzification? Explain different defuzzification techniques with example.

19. Explain about Fuzzy logic control systems.

20. Write detailed notes on classification of genetic algorithm.

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D–6490

Sub. Code
31563/34063

DISTANCE EDUCATION

M.C.A./MCA (Lateral Entry) DEGREE EXAMINATION
DECEMBER 2020.

Sixth Semester

BIG DATA ANALYTICS

(CBCS 2018 – 2019 Academic Year Onwards)

Time : 3 hours Maximum : 75 marks

PART A — ($10 \times 2 = 20$ marks)

Answer **all** questions

1. Define the term VVV in Big data.

2. What is meant by Big data?

3. What is called mapreduce?

4. Write down the uses of mapreduce.

5. What is archival store?

6. What is called Image Data?

7. What is called page rank?

8. What is meant by Hub?

9. What is called social graph?

10. What is called social network clustering?

PART B — ($5 \times 5 = 25$ marks)

Answer **all** questions, Choosing either (a) or (b)

11. (a) Explain about limitations of Hadoop.

Or

(b) Explain about current trends in data analytics approach.

12. (a) How to find similar items in documents of big data? Explain.

Or

(b) Write short notes on filtering.

13. (a) Explain about issues in Data Stream Query processing.

Or

(b) Explain about count Distinct problem.

14. (a) Write short notes on Collaborative filtering system.

Or

(b) How page ranking system works? Explain.

15. (a) Explain about types of social network.

Or

(b) Describe the features of social graph.

PART C — (3 × 10 = 30 marks)

Answer any **three** questions

16. Discuss about technologies for Big data.

17. Explain about Nearest neighbor algorithm and its applications.

18. Explain in detail about Data stream management system.

19. Discuss about the history of search engines and spam.

20. Explain in detail about applications of Social network mining.

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