DISTANCE EDUCATION

M.C.A. DEGREE EXAMINATION, MAY 2022.

First Semester

DIGITAL COMPUTER ORGANIZATION

(CBCS 2018 – 2020 Academic Year Onwards)

Time : Three hours   Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Convert 22.64_{10} to hexadecimal number.

2. What are called don't care conditions?

3. Write the truth table of half adder.

4. Define the term throughput.

5. Mention the phases of instruction cycle.

6. Write the memory reference instructions

7. What are peripherals?

8. What is stack organization?

9. Define the term bus.

10. Write the purpose of cache memory.

PART B — (5 × 5 = 25 marks)

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

11. (a) Discuss the use of complements with example.

Or

(b) State and explain DeMorgan's theorem.

12. (a) Give a note on D and T flip flop.

Or

(b) Write about error detection codes.

13. (a) Explain the basic instruction types with example.

Or

(b) Write the steps taken when an interrupt occurs.

14. (a) Describe the general register organization.

Or

(b) With a neat sketch, explain IOP.

15. (a) Describe the need for secondary storage devices.

Or

(b) Write about memory management hardware.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Reduce the following boolean expression using K-map:

$F (A, B, C, D) = \sum (2,3, 4, 5, 6,7,8,10,11)$

17. Explain Floating point representation with examples.

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18. Discuss about the design of computer.

19. What do you mean by addressing modes? Explain various addressing modes.

20. Write a detailed notes on virtual memory.

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DISTANCE EDUCATION

M.C.A. DEGREE EXAMINATION, MAY 2022.

First Semester

OBJECT ORIENTED PROGRAMMING AND C++

(CBCS 2018 – 2020 Academic Year Onwards)

Time : Three hours   Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions

1. What are input and output streams?

2. List any two I/O Manipulators and state their purpose.

3. Write a C++ code to swap two numbers using pointer?

4. Define the term private member function.

5. State the rules for operator overloading.

6. What are the characteristics of abstract class?

7. What is the main reason of using templates in C++?

8. What are the functions that the file stream class provides?

9. Mention any three exceptions with description.

10. Write the syntax of re-throwing exceptions.

PART B — (5 × 5 = 25 marks)

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

11. (a) Differentiate between procedure oriented and object oriented programming.

    Or

    (b) Explain various unformatted I/O operations.

12. (a) Write a C++ program to calculate the sum of given distances in meter and centimeter and display the results using friend function.

    Or

    (b) How to define a member function inside and outside the class? Explain with examples.

13. (a) Write short notes on pure virtual function. Give an example.

    Or

    (b) Write C++ program to add two complex numbers using overloaded "+" operator.

14. (a) Write a program to count number of occurrences of particular character in text file.

    Or

    (b) Write a C++ program to illustrate class template with multiple parameters.

15. (a) Write a C++ program for exceptions handling in constructors and destructors.

    Or

    (b) Explain how to handle exception in inheritance tree with appropriate example.

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PART C — (3 × 10 = 30 marks)

Answer any THREE questions

16. Describe in detail about the basic concepts of object oriented programming.

17. Explain various types of constructors with suitable example program.

18. Explain different types of inheritance with block diagram and example.

19. Explain the functions to perform open, close, read and write operation on files.

20. What are the various ways of handling exceptions? When do we use multi-catch handlers? Explain with an example.

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DISTANCE EDUCATION

M.C.A. DEGREE EXAMINATION, MAY 2022.

First Semester

DATA STRUCTURE AND ALGORITHMS

(CBCS 2018 /2020 Academic Year Onwards)

Time : Three hours   Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1.   What are the characteristics of an Array?

2.   Define the term space complexity.

3.   List the applications of stack.

4.   What is the need for header file?

5.   Define the term Binary Tree.

6.   List out various techniques of hashing.

7.   What is meant by searching?

8.   Define the term binary search.

9.   State the logic of Tree sort algorithm.

10.   Compare quick sort and selection sort.

PART B — (5 × 5 = 25 marks)

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

11. (a) Explain two-dimensional array. How two dimensional arrays are represented in memory?

Or

(b) Write short notes on time complexity of an algorithm.

12. (a) Write an algorithm for inserting and deleting an element from linked list. Explain with examples.

Or

(b) Write short notes on circular queue. Compare it with linear queue.

13. (a) Write algorithms to perform insert and delete operations on binary tree and explain them with examples.

Or

(b) Explain the various tree traversals and predict a binary tree with preorder: ABCDEFGHI & Inorder: BCAEDGHFI.

14. (a) Explain the algorithm of Binary search. Illustrate with an example.

Or

(b) Consider the following elements in an Array:

11 10 9 7 6 3 2 1

Apply Binary search for element 11 and discuss each step.

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15. (a) Sort the following data in ascending order using Bubble sort:

9,3,11,6,5,10,7

Or

(b) Write an algorithm to implement radix sort with suitable example.

PART C — (3 × 10 = 30 marks)

16. Explain in detail about various types of data structure.

17. Write an algorithm for postfix expression, evaluate it and show the contents of stack for the following postfix expression:

623+-382/+*2$3+

18. Elaborate on various types of binary tree with suitable examples.

19. Derive the best, average, worst case time complexity of a linear search.

20. The initial content of an array is given as 25,57,48,37,12,92,86,33. Write and illustrate the quick sort algorithm to order the elements and explain its efficiency in sorting.

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DISTANCE EDUCATION

M.C.A. DEGREE EXAMINATION, MAY 2022.

First Semester

DISCRETE MATHEMATICS

(CBCS 2020 – 2021 Academic Year Onwards)

Time : Three hours   Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1.   State the truth value of "If tiger have wings then the earth travels around the sun".

2.   If A = {1, 4, 6} and B = {2, 4, 5}. Find $A – B$ and $B – A$.

3.   Let X = {1, 2, 3, 4} and R = {(x, y)/x < y} Draw the graph of R.

4.   Define poset.

5.   Define one-one function and give an example.

6.   Prove that $\psi_{A \cap B}(x) = \psi_A(x).\psi_B(x)$.

7.   Give an example of a Group.

8.   Define Normal subgroup.

9.   Give an example of a tree with 6 vertices.

10. State Baye's theorem.

PART B — (5 × 5 = 25 marks)

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

11. (a) Construct the truth table for $\neg(P \vee Q) \wedge (P \vee R)$.

Or

(b) Show that

$$(x)(P(x) \to Q(x)) \wedge (x)(Q(x) \to R(x)) \Rightarrow (x)(P(x) \to R(x))$$

12. (a) Let R be the relation represented by the matrix $M_R = \begin{bmatrix} 0 & 1 & 1 \\ 1 & 1 & 0 \\ 1 & 0 & 1 \end{bmatrix}$. Find the matrix representing for the following.

(i) R^{-1} (ii) $\overline{R}$ (iii) R^2.

Or

(b) Let m be a positive integer greater than 1. Show that the relation $R = \{(a, b) \mid a \equiv b \pmod{m}\}$ is an equivalence relation on the set integers.

13. (a) Prove that the composite of two one-one and onto functions is also a one-one and onto functions.

Or

(b) If $f = \begin{pmatrix} 1 & 2 & 3 & 4 \\ 3 & 2 & 1 & 4 \end{pmatrix}$ and $g = \begin{pmatrix} 1 & 2 & 3 & 4 \\ 2 & 3 & 4 & 1 \end{pmatrix}$ are permutations, prove that $(g \circ f)^{-1} = f^{-1} \circ g^{-1}$.

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14. (a) Find all semigroup of (Z_6, X_6) where $Z_6 = \{[0],[1],[2],[3],[4],[5]\}$.

Or

(b) Prove that the intersection of two normal subgroup of a group is a subgroup of G.

15. (a) Prove that the number of odd degree vertices is always even.

Or

(b) A bag contains 5 red and 3 green balls and a second bag 4 red and 5 green balls. One of the bags is selected at random and a draw of 2 balls is made from it. What is the probability that one of them is red and the other is green?

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. In a survey of 100 students, it was found that 40 studied Mathematics, 64 studied Physics, 35 studied Chemistry, 1 studied all the three subjects, 25 studied Mathematics and Physics, 3 studied Mathematics and Chemistry and 20 studied Physics and Chemistry. Find the number of students who studied Chemistry only and the number who studied none of these subjects.

17. Let R and S are equivalence relations on X, Show that $R \cap S$ is also equivalent? Whether $R \cup S$ is also an equivalent relation? If not give and example.

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18. List all possible functions from $X = \{a, b, c\}$ to $Y = \{0,1\}$ and indicate in each case whether the function is one-to- one is onto and is one-to-one and onto.

19. State and prove Lagranges theorem.

20. Prove that a simple graph with n vertices and k components can have atmost $\dfrac{(n-k)(n-k+1)}{2}$ edges.

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DISTANCE EDUCATION

M.C.A. DEGREE EXAMINATION, MAY 2022.

Second Semester

ACCOUNTING AND FINANCIAL MANAGEMENT

(CBCS 2020 – 21 Academic Year Onwards)

Time : Three hours   Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1.   What is meant by ratio?

2.   What do you mean by 'going concern' concept?

3.   List out different types of Errors

4.   What is meant by dividend policy?

5.   Write a note on Quick ratio.

6.   Define the concept of Realization.

7.   What is break even point?

8.   What is working capital?

9.   What do you mean by Factoring?

10. Define the concept of Business Entity.

PART B — (5 × 5 = 25 marks)

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

11. (a) Explain briefly about the advantages of Accounting.

Or

(b) Brief on 'Financial management'.

12. (a) Explain the Limitations of Ratio analysis.

Or

(b) What do you mean by working capital? Explain briefly.

13. (a) What is costing? Explain the nature and importance of costing.

Or

(b) What is Capital Structure? Explain in detail the different factors affecting capital structure?

14. (a) Brief on the Objectives of Financial Management.

Or

(b) A firm sells 7000 units at Rs. 27/unit. Its fixed cost amounts to Rs. 44,000 and variable cost to Rs. 16 per unit. You are required to find out:

(i) The break even point

(ii) Profit volume (P/V) ratio

15. (a) Explain briefly about various types of dividend policies.

Or

(b) Explain in detail the following terms:

(i) Current Assets

(ii) Current Liabilities

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PART C — (3 × 10 = 30 marks)

Answer any THREE questions

16. Explain in detail about Ledger and the need for its preparation.

17. Compare and contrast Cost accounting and Management accounting

18. Explain the determinants of working capital.

19. From the following trial balance of Mr. Arun, prepare a trading and Profit and Loss account for the year ending 31.12.2016 and a balance sheet as on that date:

Particulars	Debit (Rs.)	Credit (Rs.)
Capital		24,000
Drawings	4,500	
Purchases	20,000	
Sales		30,500
Stock (01-01-2016)	8,000	
Returns inwards	1,500	
Salary	4,200	
Wages	1,200	
Kent	350	
Bad debts	400	
Discounts	700	1,900
Sundry Debtors	14,000	
Sundry Creditors		10,000
Cash in hand	6,200	
Insurance	700	
Printing	150	
Furniture	2,000	
Machinery	5,000	
Bills payable		2,500
	68,900	68,900

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Adjustment:

(a) Closing Stock was valued at Rs.7,000

(b) Insurance was prepaid to the extent of Rs.60

(c) Outstanding liabilities were: Salary Rs.200, Wages Rs.200

(d) Make provision for doubtful debts at 5% on sundry debtors

(e) Calculate interest on capital 5% pa.

(f) Depreciate machinery at 5% and furniture at 10%

(g) Provide for discount on creditors at 1%.

20. From the following information, calculate

(a) Debt equity ratio

(b) Interest coverage ratio

(c) Debt on total fund ratio

(d) Return on investment

(e) Capital turnover ratio

Information

	Rs.
Share Capital	160000
General reverse	60000
Profit and Loss account	100000
Loan at 15% interest	200000
Sales for the year	560000
Tax paid during the year	40000

Profit for the current year after interest and tax: 80,000

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DISTANCE EDUCATION

MCA DEGREE EXAMINATION, MAY 2022.

Second Semester

RELATIONAL DATABASE MANAGEMENT SYSTEM

(CBCS 2018 – 2020 Academic Year Onwards)

Time : Three hours   Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions

1.   Define the term database management system.

2.   What is relationship set?

3.   Why the join operation is given a special attention?

4.   List the set operations.

5.   What is meant by 'subquery'?

6.   How are primary keys related to FDs?

7.   What is a serializable scheule?

8.   Define the term log.

9.   What is the relationship between files and indexes?

10. Write the order of B+ tree.

PART B — (5 × 5 = 25 marks)

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

11. (a) Describe the levels of abstraction in a DBMS.

Or

(b) Explain entities, attributes and entity sets with examples.

12. (a) What are integrity constraints? How are these constraints expressed in SQL?

Or

(b) Describe the selection operation.

13. (a) Write and explain the form of a basic SQL query?

Or

(b) Give a brief account on minimal cover for a set of FDs.

14. (a) Discuss on serializable schedule.

Or

(b) How is the log used in transaction rollback and crash recovery?

15. (a) Compare the features of different file organizations?

Or

(b) Write about ISAM methods.

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PART C — (3 × 10 = 30 marks)

Answer any THREE questions

16. Explain database system structure with a neat sketch.

17. Relational algebra and relational calculus are said to be equivalent in expressive power. Explain what this means and how it is related to the notion of relational completeness?

18. What is normalization? Explain various normal forms.

19. Discuss about lock based protocols.

20. Explain about B+ trees.

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DISTANCE EDUCATION

M.C.A. DEGREE EXAMINATION, MAY 2022.

Second Semester

COMPUTER GRAPHICS

(CBCS 2018/2020 Academic Year Onwards)

Time : Three hours   Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions

1. What are the elements of computer graphics?

2. List any two line drawing algorithms in computer graphics.

3. What do you mean by transformation?

4. What is 2D rotation?

5. What do you mean by polygon surface?

6. What for Bezier curves are used?

7. List down the type of 3D transformations?

8. What is meant by 3D rotation?

9. Write a note on the term visible surface detection.

10. Why do we use Z buffer?

PART B — (5 × 5 = 25 marks)

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

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

Or

(b) What is boundary filling in OS? Illustrate the steps in the algorithm.

12. (a) How to translate a point from one coordinate position to another? Explain.

Or

(b) Discuss briefly about the 2D shearing transformation of object with necessary diagram.

13. (a) What is a curve? Explain its types.

Or

(b) List out the properties of B-Spline curves.

14. (a) Write short notes on 3D scaling.

Or

(b) What is parallel projection? Explain with its structure.

15. (a) Discuss briefly about depth sorting.

Or

(b) Write down the steps to perform insertion in octrees with example.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions

16. Explain with a neat structure the working principle of cathode ray tube.

17. What is composite transformation? Explain with its structure.

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18. What is Gouraud shading? Explain with its structure.

19. Discuss in detail the following :

    (a) Oblique projection

    (b) Isometric projection.

20. Explain in detail about back face detection method with an example.

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DISTANCE EDUCATION

MCA DEGREE EXAMINATION, MAY 2022.

Second Semester

VISUAL PROGRAMMING WITH .NET

(CBCS 2020 – 2021 Academic Year Onwards)

Time : Three hours　　　　　　　　Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions

1. What is visual studio?

2. How do windows project differs from web project?

3. What is the use of 'enum' data type?

4. Differentiate between class snippet and property snippet.

5. What is the use of interface?

6. How to change the targe framework in visual studio?

7. Writ the uses of auto window and watch window.

8. How to create a foreign key constraint in visual studio?

9. What is the use of XAML in WPF?

10. List the advantages of MVC.

PART B — (5 × 5 = 25 marks)

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

11. (a) Explain the visual studio components: Menu, Toolbox and work area.

Or

(b) Explain the elements of solution explorer and status bar in visual studio.

12. (a) Make short notes on code skeleton.

Or

(b) How to create a VB.Net class? Explain with an example.

13. (a) Explain about arrays and generics.

Or

(b) Explain all about project compilation.

14. (a) Discuss in detail about application state inspection.

Or

(b) Write the procedure to create an employee database application in VS.

15. (a) Elaborate on layouts.

Or

(b) Explain the procedures to use WPF controls.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions

16. Describe the features of visual studio project types.

17. Explain the creation and use of methods in VB.Net.

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18.   Explain the procedure to examine the property settings.

19.   Detail on application state inspection.

20.   Narrate the process of designing silver light application. Illustrate.

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DISTANCE EDUCATION

MCA DEGREE EXAMINATION, MAY 2022.

Third Semester

SOFTWARE ENGINEERING

(CBCS 2020 – 2021 Academic Year Onwards)

Time : Three hours   Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions

1.   What is the role of a software?

2.   What are the merits of incremental model?

3.   What are called validating requirements?

4.   What is behavioural model?

5.   What are the components of architectural design?

6.   What is design evaluation?

7.   What is regression testing?

8.   What are software product metrics?

9.   How risks are identified?

10.   What is formal technical review?

PART B — (5 × 5 = 25 marks)

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

11. (a) Briefly explain the process framework.

Or

(b) Explain waterfall model with neat sketch.

12. (a) Write about requirement engineering design and construction.

Or

(b) Explain Scenario based modeling.

13. (a) Describe the system design model with neat sketch.

Or

(b) List and explain the golden rules of user interface design.

14. (a) Compare and contrast testing and debugging.

Or

(b) Explain the need for system testing and validation testing.

15. (a) Explain RMMM plan.

Or

(b) Write about ISO 9000 quality standards.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions

16. Describe the incremental process models.

17. Explain the building blocks of object-oriented analysis.

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18. Describe the user interface analysis and design.

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

20. Explain the various risk strategies.

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DISTANCE EDUCATION

M.C.A./M.C.A. (LATERAL ENTRY) DEGREE EXAMINATION, MAY 2022.

Third Semester

OPERATING SYSTEM

(CBCS 2018 – 2020 Academic Year Onwards)

Time : Three hours   Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions

1.   What is an operating system? Give examples.

2.   What is a trap? How it was generated?

3.   What are the different types of process scheduling queues?

4.   What is the best scheduling algorithm in OS?

5.   What are the two functions that control critical section?

6.   List out the different methods for handling deadlocks.

7.   Why do we need swapping operation in OS?

8.   What are the types of contiguous memory allocation?

9.   What are the different types of files in OS?

10. What are the types of file sharing in OS?

PART B — (5 × 5 = 25 marks)

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

11. (a) Explain in brief about the category of layered operating system structure that maintains modularity and robustness.

Or

(b) What are the major operations of OS? Explain with its structure.

12. (a) How does a connection between two processes takes place with shared memory method? Explain with its structure.

Or

(b) What is load balancing in OS? Discuss its types.

13. (a) What are called monitors in OS? Explain with an example.

Or

(b) Explain with an example the ways to prevent deadlock.

14. (a) Discuss briefly about contiguous memory allocation with its structure.

Or

(b) What is paging? Briefly explain its working procedure.

15. (a) What is mounting in OS? Discuss about file system mounting.

Or

(b) Elaborate on the process of file sharing in OS.

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PART C — (3 × 10 = 30 marks)

Answer any THREE questions

16. What are the important functions of OS? Explain each function in detail.

17. What are the different operations that can be performed on a process? Explain each operation with its structure.

18. Elaborate in detail about the solution to the critical section problem using hardware synchronization.

19. What do you mean by non-contiguous memory allocation? Explain with its structure.

20. Describe in detail about various file allocation methods.

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DISTANCE EDUCATION

M.C.A. DEGREE EXAMINATION, MAY 2022.

Third Semester

INTERNET AND JAVA PROGRAMMING

(CBCS 2020 – 2021 Academic Year Onwards)

Time : Three hours   Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL the questions

1. List out the features of Email.

2. Write the methods used to connect to internet?

3. Define the term JVM.

4. Write the syntax of nested if else statement.

5. What is meant by enumerated types?

6. What is the use of last index of() method?

7. Define the term Runnable interface.

8. Distinguish between errors and exceptions.

9. Write an example for using stream classes in file handling.

10. What is the job of Buffered writer class?

PART B — (5 × 5 = 25 marks)

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

11. (a) Brief on web browsers.

Or

(b) Discuss about internet relay chat.

12. (a) Describe the data types available in Java.

Or

(b) Write a java program to check the given year is leap year or not.

13. (a) Explain about two dimensional array in java.

Or

(b) Describe the benefit of user defined packages in java.

14. (a) What is the advantage of extending thread class? Explain.

Or

(b) Illustrate user defined exception with an example.

15. (a) Give a brief account on byte stream classes.

Or

(b) How to write a character to a file? Explain with complete program.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions

16. Explain about domain name system.

17. Explain in detail about operators in java with suitable examples.

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18. Discuss about string handling functions.

19. Write in detail about graphic methods in java. Explain any two with examples.

20. Explain the way of handling I/O exceptions in file operations.

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DISTANCE EDUCATION

M.C.A. DEGREE EXAMINATION, MAY 2022.

Third Semester

COMPUTER NETWORKS

(CBCS 2020 – 21 Academic Year Onwards)

Time : Three hours   Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions

1. What are the two types of transmission technology available?

2. Which OSI layers are the network support layers?

3. What is block coding?

4. What are called multiple access protocols?

5. Differentiate between circuit switching and packet switching.

6. Write down the merits of Hierarchical routing.

7. Expand the terms TCP and UDP.

8. What is called remote login?

9. Define the term cryptography.

10. What is the function of substitution cipher?

PART B — (5 × 5 = 25 marks)

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

11. (a) Compare the functions of LAN, MAN and WAN networks.

Or

(b) Explain the various transmission media.

12. (a) Write about Cyclic Redundancy Check.

Or

(b) Explain about CSMA/CD.

13. (a) Write short notes on Datagram subnets.

Or

(b) Explain Multicast routing technique.

14. (a) List and explain the services of transport layer.

Or

(b) Write about Remote procedure call and remote file access.

15. (a) Explain the encryption model in cryptography.

Or

(b) Explain DES algorithm.

PART C— (3 × 10 = 30 marks)

Answer any THREE questions

16. Explain OSI reference model with neat sketch and describe the functions of each layer.

17. Explain about sliding window protocols.

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18. Explain the following routing algorithms:

    (a) Dynamic routing

    (b) Link state routing

19. Discuss on:

    (a) File transfer

    (b) SNMP

20. Explain RSA algorithm in Asymmetric cryptography.

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DISTANCE EDUCATION

M.C.A. DEGREE EXAMINATION, MAY 2022.

Third Semester

DATAMINING AND WAREHOUSING

(CBCS 2020 – 2021 Academic Year Onwards)

Time : Three hours   Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.

1.   List out the types of OLAP operations.

2.   What is meant by missing values in data mining?

3.   What is classification in data mining?

4.   What is meant by Bayesian classifier?

5.   Expand the terms DBSCAN, CLARANS, ROCK, CACTUS.

6.   What is the difference between human learning and machine learning?

7.   List out some tools for visual data mining.

8.   What is meant by information retrieval?

9.   Expand and write a note on the terms V V V in Bigdata.

10. What is meant by Bigdata?

SECTION B — (5 × 5 = 25 marks)

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

11. (a) Write short notes on measures of similarity.

Or

(b) Explain about the OLAP operations.

12. (a) How does association rules work in data mining? Explain.

Or

(b) Write short notes on Decision tree induction.

13. (a) Explain briefly about Genetic Algorithm.

Or

(b) Write short notes on Supervised learning with suitable example.

14. (a) How concept of visual data mining differs from text data mining. Explain briefly.

Or

(b) Explain the use of Web usage mining with an example.

15. (a) Why Big data analytics is so important?

Or

(b) Give a brief account on the features of Hadoop.

2 **D–5575**

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Explain the steps in Market basket analysis with suitable example.

17. Discuss on data pre-processing methods in data mining.

18. Discuss in detail about Genetic algorithm concepts.

19. Explain in detail about various types of Web mining.

20. Explain about core components of Hadoop and its applications.

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D–5576

DISTANCE EDUCATION

M.C.A. DEGREE EXAMINATION, MAY 2022.

Fourth Semester

INTERNET OF THINGS (IOT)

(CBCS 2020 – 2021 Academic Year Onwards)

Time : Three hours　　　　　　　　　Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Define the term IoT.

2. Write a note on communication API.

3. What is called IoT system management?

4. Define the term SDN.

5. How hardware helps in IoT Platforms?

6. What are the interfaces used in IoT Hardware?

7. What is a Data type?

8. Write the basic use of Python Programming.

9. Define a list in python.

10. Define the term tuple.

SECTION B — (5 × 5 = 25 marks)

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

11. (a) Elaborate on the Challenges in IoT.

Or

(b) Discuss the characteristics of IoT.

12. (a) Write any five differences between IoT and M2M.

Or

(b) Brief on the components in IoT design methodology.

13. (a) Discuss about the types of hardware devices used in IoT platforms.

Or

(b) Differentiate between Arduino and Raspberry pi.

14. (a) Explain the advantages and disadvantage of Python Programming.

Or

(b) Describe the Python character set and expressions.

15. (a) List and explain the built-in functions for lists with few examples.

Or

(b) Write short notes on indexing and slicing.

2   **D–5576**

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Explain in detail about the IoT Eco system.

17. Describe in detail about Integration and Application development in IoT Design methodology.

18. Discuss in detail about the IoT tools used for its effective applications.

19. Elaborate the decision and control statements used in python programming with proper examples.

20. Discuss with relevant examples about sorting and traversing.

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DISTANCE EDUCATION

M.C.A. DEGREE EXAMINATION, MAY 2022.

Fourth Semester

ARTIFICIAL INTELLIGENCE AND SOFT COMPUTING

(CBCS 2020 – 2021 Academic Year Onwards)

Time : Three hours   Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.

1.   Define the term Artificial Intelligence.

2.   What is called problem space?

3.   Name the various approaches in knowledge representation.

4.   Compare forward vs backward reasoning.

5.   What are the characteristics of soft computing?

6.   What is called Hebb network?

7.   Write down the properties of fuzzy sets.

8.   What are the rules of defuzzification?

9.   Differentiate between Traditional and Genetic algorithm.

10. Mention few applications of GA.

SECTION B — (5 × 5 = 25 marks)

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

11. (a) Write short notes on AI technique.

                         Or

     (b) Explain the problem reduction technique with an example.

12. (a) Write about Knowledge representations and mappings.

                         Or

     (b) Compare Procedural vs Declarative knowledge.

13. (a) Explain the constituents of soft computing.

                         Or

     (b) Briefly explain the various learning process.

14. (a) Explain the various operations on fuzzy set.

                         Or

     (b) Explain the features of fuzzification.

15. (a) What is fitness function? What is its role in GA?

                         Or

     (b) Write about mutation in GA.

          SECTION C — (3 × 10 = 30 marks)

          Answer any THREE questions.

16. Describe the Hill climbing algorithm with neat sketch.

17. How knowledge is represented using predicate logic? Explain.

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18. Describe the neural network architecture with neat sketch.

19. Discuss about fuzzy relations.

20. Explain the various Genetic operators.

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D–5578		Sub. Code
		31543

DISTANCE EDUCATION

M.C.A. DEGREE EXAMINATION, MAY 2022.

Fourth Semester

BIG DATA ANALYTICS AND R PROGRAMMING

(CBCS 2020 – 2021 Academic Year Onwards)

Time : Three hours   Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.

1.   What do you mean by big data?

2.   Write down the limitations of Hadoop.

3.   What do you mean by MapReduce?

4.   Write any two applications of nearest neighbour search.

5.   What is NoSQL?

6.   How NoSQL is used to manage BigData?

7.   Write down the data types in R Language.

8.   What are the rules of strings in R?

9.   Write down the syntax for creating a List in R.

10.   What is the need for data reshaping?

SECTION B — (5 × 5 = 25 marks)

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

11. (a) Describe the characteristics of Big Data.

Or

(b) Write about Hadoop Ecosystem.

12. (a) Write Map Reduce pseudocode for "Group By" "aggregation" in a database.

Or

(b) Explain Nearest neighbour search method.

13. (a) Explain the working of NoSQL Business drivers.

Or

(b) Write down the variations of NoSQL architectural patterns.

14. (a) Explain the various operations in R.

Or

(b) Explain functions in R with syntax and examples.

15. (a) Explain with syntax for manipulating array elements in R.

Or

(b) Write short notes on melting and casting.

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Describe the technologies available for Big Data.

17. Explain the procedure for finding similar items using Map Reduce.

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18. Describe NoSQL data architectural pattern with neat sketch.

19. Write a R script to calculate the roots of quadratic equation.

20. Discuss about packages in R.

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DISTANCE EDUCATION

M.C.A. DEGREE EXAMINATION, MAY 2022.

Fourth Semester

MOBILE APPLICATION DEVELOPMENT

(CBCS 2020 – 2021 Academic Year Onwards)

Time : Three hours　　　　　　　Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.

1. What is called a cellular network?

2. What are the various types of wireless applications?

3. What are the uses of SMS?

4. Define the term Mobile widget.

5. What is called click streams?

6. Define the term Prototyping.

7. Explain the benefits of J2ME.

8. Write a note on run time environment.

9. What are the advantages of Android OS?

10. What is meant by Android AVD.

SECTION B — (5 × 5 = 25 marks)

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

11. (a) What are the attributes of mobile devices? elaborate.

Or

(b) Write the challenges in mobile devices.

12. (a) Explain briefly on SMS Architecture.

Or

(b) Explain about Informative apps.

13. (a) What are the types of site map? Discuss.

Or

(b) How wire frames are used in developing mobile applications? Explain.

14. (a) Discuss on MIDlet Programming and its advantages.

Or

(b) Discuss about J2ME wireless toolkit.

15. (a) Brief on Android environmental development.

Or

(b) Differentiate between eclipse and emulator.

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SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Describe in detail about the various types of Operating system and OEM's used in smart phones.

17. Elaborate on Location based services.

18. Explain in detail about the elements of mobile design.

19. Enunciate in detail about J2ME Architecture.

20. Explain in detail about the various project frameworks.

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