

**M.C.A. DEGREE EXAMINATION - DECEMBER – 2020**  
**COMPUTER APPLICATION**  
**FIRST YEAR**  
**COMPUTER FUNDAMENTALS**

**Time: 3 Hours**

**Maximum Marks: 75**

**PART – A**

**(5 × 5 = 25 Marks)**

**Answer any FIVE questions.**

1. What are the four types of Number Systems?  
Explain Them.
2. Write about the logic gates.
3. Discuss about the shift operators with suitable example.
4. Briefly describe the fundamentals of control unit.
5. Explain the characteristics of instruction set.
6. Illustrate the stack addressing schemes.
7. Describe about the inter process arbitration.

**PART - B**

**(5 × 10 = 50 Marks)**

**Answer any FIVE questions.**

8. Discuss about the computer generations.
9. Explain detail about the input output peripherals.
10. Discuss about the basic structure of CPU.
11. Briefly explain about the ALU organization.
12. Describe about the cpu components and CPU registers.
13. Discuss about the interprocess communication and cache coherence.

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**PG-C-891**

**MCA-02**

**M.C.A. DEGREE EXAMINATION - DECEMBER – 2020**

**COMPUTER APPLICATION**

**FIRST YEAR**

**INTRODUCTION TO SOFTWARE**

**Time: 3 Hours**

**Maximum Marks: 75**

**PART – A**

**(5 × 3 = 15 Marks)**

**Answer any FIVE questions.**

1. What is mean by Flowchart? Give example.
2. Discuss about the Deadlock avoidance.
3. Describe the Structure of UNIX operating system.
4. Briefly describe the Vi Screen editor.
5. Explain the Shell Programming.
6. Illustrate the For loops with suitable example.
7. Describe about the Role of software engineer.

**PART - B**

**(4 × 15 = 60 Marks)**

**Answer any FIVE questions.**

8. Discuss about the Linkers and Loaders.
9. Explain detail about the CPU Scheduling.
10. Discuss about the Structure of UNIX operating system and File System.

11. Briefly explain about the Text Editor and Line editors.
12. Describe about the Parameter passing and Shell programming language constructs.
13. Discuss about the Software Life Cycle.

**M.C.A. DEGREE EXAMINATION - DECEMBER – 2020****COMPUTER APPLICATION****FIRST YEAR****DATA STRUCTURES THROUGH C****Time: 3 Hours****Maximum Marks: 75****PART – A****(5 × 2 = 10 Marks)****Answer any FIVE questions.**

1. Write about the Structure of a C program.
2. Mention about the C library functions.
3. Discuss about the different types of arrays.
4. Explain the Call by Reference.
5. Discuss about the Adjacency matrix.
6. Explain the queue structures using array in C.
7. Describe about the quick sorting.

**PART - B****(4 × 5 = 20 Marks)****Answer any FIVE questions.**

8. Discuss about the different types of Data Types.
9. Explain detail about the Control Structures with suitable example.
10. Discuss about the different types of Storage Classes.
11. Briefly explain about the stack operations with suitable example.
12. Describe about the Depth First Search and Breadth First Search.
13. Discuss about the Tree Traversals.

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**M.C.A. DEGREE EXAMINATION -DECEMBER – 2020**

**COMPUTER APPLICATION**

**FIRST YEAR**

**ELEMENTS OF SYSTEMS ANALYSIS AND DESIGN**

**Time: 3 Hours**

**Maximum Marks: 75**

**PART – A**

**(5 × 2 = 10 Marks)**

**Answer any FIVE questions.**

1. Explain the Elements of Systems Analysis.
2. Write about the Role of System Analyst
3. Discuss the Cost Benefit Analysis.
4. Mention about the types of Code. Explain them
5. Explain the Benchmark testing.
6. Illustrate the Impact of MIS.
7. Discuss about the Ergonomics.

**PART - B**

**(4 × 5 = 20 Marks)**

**Answer any FIVE questions.**

8. Discuss about the System development life cycle and Software crisis.

Explain detail about the Feasibility study.

9. Describe about the Input design and control.
  10. Explain about the Designing screen output/report.
  11. Write the System Maintenance and MIS.
  12. Discuss about the Components of Multimedia.
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**PG-C-894**

**MCA-05**

**M.C.A. DEGREE EXAMINATION –  
DECEMBER 2020**

**First Year**

**INTRODUCTION TO DATABASE  
MANAGEMENT SYSTEM**

Time : 3 hours

Maximum marks : 75

**PART A — (5 × 5 = 25 marks)**

Answer any FIVE questions.

1. Write in detail about three views of data.
2. Compare file system and database management system.
3. Describe the concept of file organization.
4. Discuss about administration of DBMS.
5. Illustrate the structure of distributed database.
6. Write short notes on object oriented DBMS.
7. Compare and contrast between KBMS and DBMS.



PART B — (5 × 10 = 50 marks)

Answer any FIVE questions.

8. Draw the architecture of DBMS and explain it in detail.
  9. Briefly explain about E-R model and relational database model.
  10. Describe in detail about the methods of file organization.
  11. Discuss in detail about normalization techniques.
  12. List the various data manipulation statements with syntax and purposes.
  13. Write in detail about client/server database management system.
  14. Describe in detail about knowledge base management system.
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**M.C.A. DEGREE EXAMINATION - DECEMBER – 2020****COMPUTER APPLICATION****FIRST YEAR****INTRODUCTION TO COMPUTER ORGANISATION****Time: 3 Hours****Maximum Marks: 75****PART – A****(5 × 5 = 5 Marks)****Answer any FIVE questions.**

1. Describe the Von Neumann Architecture.
2. Simplify the following boolean function in sum-of-products form:  
$$F(A, B, C, D) = \sum (0, 1, 2, 5, 8, 9, 10)$$
3. Explain various peripheral devices.
4. Briefly describe the characteristics of main memory.
5. Explain the various types of instruction formats.
6. Describe the role of assembly language.
7. Explain various examples of assembly language programs.

**PART - B****(5 × 10 = 50 Marks)****Answer any FIVE questions.**

8. Discuss the fixed point representation of data along with the types of operations that can be performed.
9. What are combinatorial circuits? Describe half adder and full adder in detail.
10. Explain direct memory access in detail.
11. Explain the characteristics of cache memory in detail.
12. Discuss the address sequencing in micro-programs.
13. Explain in detail the architecture of Motorola 68000 microprocessor.
14. Explain high level programming with appropriate examples.

PG-C-896

MCA-07

**M.C.A. DEGREE EXAMINATION - DECEMBER – 2020**

**COMPUTER APPLICATION**

**FIRST YEAR**

**INTRODUCTION TO SOFTWARE ENGINEERING**

**Time: 3 Hours**

**Maximum Marks: 75**

**PART – A**

**(5 × 5 = 5 Marks)**

**Answer any FIVE questions.**

1. What are the merits of incremental model? Explain briefly.
2. Describe the advantages of fourth generation techniques in software engineering.
3. Explain the key people involved in the software process development.
4. What is meant by FP-based estimation? Give an example.
5. Explain the role of ISO 9000 quality standards in software quality assurance.
6. Describe the role of functional modeling and information flow.
7. Explain various design principles of good design.

**PART - B**

**(5 × 10 = 50 Marks)**

**Answer any FIVE questions.**

8. Discuss various phases involved in sequential process model.
9. Describe the phases of rapid application development model in detail.
10. Explain various empirical estimation models in detail.
11. Explain risk identification process in detail with appropriate examples.
12. Discuss how software reviews help in uncovering error in the software engineering process.

13. Explain in detail the basic concepts of software design.
  14. Explain black box testing and white box testing in detail with suitable examples.
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**M.C.A. DEGREE EXAMINATION - DECEMBER – 2020****COMPUTER APPLICATION****FIRST YEAR****COMPUTER ORIENTED NUMERICAL METHODS****Time: 3 Hours****Maximum Marks: 75****PART – A****(5 × 5 = 25 Marks)****Answer any FIVE questions.**

1. State the Bisection Algorithm.
2. List the sources of error and explain?
3. Explain the condition for convergence of Gauss –Seidal method.
4. Find an iterative formula to find  $\sqrt{N}$ , where N is Positive Number.
5. What is Fixed point algorithm?
6. Explain Simpson's rule.
7. Explain modified Euler algorithm.

**PART - B****(5 × 10 = 50 Marks)****Answer any FIVE questions.**

8. Solve  $x^3 - \sin x - 1 = 0$  correct to two significant figures by fixed point iteration method correct up to 2 decimal places.
9. Using following data find the Newton's interpolating polynomial and also find the value of y at x=5

X	0	10	20	30	40
Y	7	18	32	48	85

10. Using following data find the value of first and second derivatives of y at x=30

x	10	30	50
y	42	64	88

11. Using Trapezoidal and Simpsons rule evaluate the following integral with number of subintervals n =6

$$\int_0^{0.6} \frac{dx}{\sqrt{1+x}}$$

12. Solve following linear equations using Gauss-Seidal iteration method starting from 1, 1, 1

$$x_1 + x_2 + 2x_3 = 8$$

$$2x_1 + 3x_2 + x_3 = 12$$

$$5x_1 + x_2 + x_3 = 15$$

13. Use the Runge-Kutta second and fourth order method to find y(0.1) and y(0.2) correct to four decimal points

Given  $dy/dx=y-x$ ,  $y(0)=2$ .

14. Use the Euler method to solve numerically the initial value problem

$$u' = -2tu^2, u(0) = 1$$

With  $h = 0.2$  on the interval  $[0, 1]$ . Compute  $u(1.0)$ ,

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PG-C-898

MCA-09

**PG DEGREE EXAMINATION - DECEMBER – 2020**

**COMPUTER APPLICATION**

**FIRST YEAR**

**C++ AND OBJECT ORIENTED PROGRAMMING**

**Time: 3 Hours**

**Maximum Marks: 75**

**PART – A**

**(5 × 5 = 25 Marks)**

**Answer any FIVE questions.**

1. What is identifier? Explain how they are created in C++ and their naming conventions.
2. Briefly explain the bitwise logical operators with sample C++ code.
3. Compare and contrast hierarchical inheritance and hybrid inheritance.
4. List out the different types visibility labels of a member class in C++. Give the example program.
5. What is function template? Explain its syntax and semantics?
6. Discuss on conditional expressions with example.
7. What are the disadvantages of Conventional Programming?

**PART - B**

**(5 × 10 = 50 Marks)**

**Answer any FIVE questions.**

8. Discuss in detail about various fundamental types corresponding to basic storage units of a computer with suitable C++ program.

9.
    - a) Discuss about Member functions and Non-Member functions.
    - b) Write a program for finding the roots of given expression.
  10.
    - a) Write a C++ program to generate Fibonacci series using recursion with member function.
    - b) Explain about the different types of methods to pass an argument to a function with an example.
  11. Explain in detail about single dimensional array and multi dimensional array with suitable C++ examples.
  12. Explain in elaborate about the overview of C++ and structure of C++ program with suitable C++ code.
  13.
    - a) Write a multi catch C++ program for Array Index exception.
    - b) Explain about the various error trapping functions.
  14. Define polymorphism. Discuss in detail about function overloading and operator overloading.
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**MCA-10**

**M.C.A. DEGREE EXAMINATION - DECEMBER - 2020**

**First Year**

**THEORY OF COMPUTER SCIENCE**

**Time: 3 Hours**

**Maximum Marks: 75**

**PART A ( $5 \times 5 = 25$  Marks)**

Answer any FIVE questions.

1. Discuss the properties of UNION operation on sets.
2. What is Composite function? Give example
3. Write the truth table for  $\neg(P \vee Q)$
4. Write down any three formulas for Equivalent in mathematical logic.
5. Let  $G = (\{S, C\}, \{a, b\}, P, S)$  where  $P$  consists of  $S \rightarrow aCa$ ,  $C \rightarrow aCa / b$ . Find  $L(G)$ .
6. What is the complement of a graph. Give example
7. What is a path? Give example.

PART B ( $5 \times 10 = 50$  Marks)

Answer any FIVE questions.

6. Define Equivalence relation. Let  $A=\{x,y\}$  and  $R=\{(y,y)\}$ . Test whether the given relation  $R$  is equivalent or not.
7. Prove that the function  $f:X \rightarrow X$ , where  $X=\{x \in \mathbb{R}, x \neq 0\}$ , defined by  $f(x) = 1/x$  is one to one and onto.
8. Indicate which ones are tautologies and which ones are contradictions.
  - i.  $(P \rightarrow \neg P) \rightarrow \neg P$ 
    - a.  $(P \rightarrow (P \vee Q))$
    - b.  $(P \rightarrow (Q \rightarrow P))$
    - c.  $(\neg Q \wedge P) \wedge Q$
9. Prove the following
  - a.  $P \rightarrow R \Leftrightarrow \neg P \rightarrow Q$
  - b.  $P \rightarrow (Q \rightarrow R) \Leftrightarrow P \wedge Q \rightarrow R$
10. Construct a NFA with  $\epsilon$  moves for the regular expression  $10^*+1$ .
11. Is context free language is closed under Union? Justify.
12. Write short note on matrix representation of graphs

**M.C.A. DEGREE EXAMINATION - DECEMBER - 2020****COMPUTER APPLICATION****SECOND YEAR****COMPUTER GRAPHICS****Time: 3 Hours****Maximum Marks: 75****PART - A****(5 × 5 = 25 Marks)****Answer any FIVE questions.**

1. Explain colour CRT monitor's applications briefly.
2. Write notes on touch panels.
3. Write a detailed note on reflection transformation
4. What is meant by shear? Explain.
5. Explain any two input devices.
6. What is meant by pixel phasing? Explain briefly.
7. Explain about window to view port coordinate transformation.

**PART - B****(5 × 10 = 50 Marks)****Answer any FIVE questions.**

8. Explain about Bresenham's line drawing algorithm.
9. Explain view transformation and windowing transformation in detail.
10. Write in detail about color CRT monitors.
11. Explain clipping operations with their primitive types.
12. Explain about cohen-sutherland line clipping algorithm.
13. What is perspective projection? Explain with example.
14. Explain the depth-sorting method in detail.

**M.C.A. DEGREE EXAMINATION - DECEMBER - 2020****COMPUTER APPLICATION****SECOND YEAR****COMPUTER GRAPHICS****Time: 3 Hours****Maximum Marks: 70****PART - A****(2 × 5 = 10 Marks)****Answer any FIVE questions.**

1. List out any 4 input devices.
2. Write about two dimensional viewing.
3. Write the basic concepts of scaling.
4. Define clipping.
5. List out the components of user interface.

**PART - B****(4 × 5 = 20 Marks)****Answer any FOUR questions.**

6. Explain colour CRT monitor's applications briefly.
7. Write notes on touch panels.
8. Write a detailed note on reflection transformation
9. What is meant by shear? Explain.
10. Explain any two input devices.
11. What is meant by pixel phasing? Explain briefly.
12. Explain about window to view port coordinate transformation.

**PART - C**

**(4 × 10 = 40 Marks)**

**Answer any FOUR questions.**

13. Explain about Bresenham's line drawing algorithm.
14. Explain view transformation and windowing transformation in detail.
15. Write in detail about color CRT monitors.
16. Explain clipping operations with their primitive types.
17. Explain about cohen-sutherland line clipping algorithm.
18. What is perspective projection? Explain with example.
19. Explain the depth-sorting method in detail.

**PG-C-901**

**MCA-12**

**M.C.A. DEGREE EXAMINATION - DECEMBER - 2020**

**COMPUTER APPLICATION**

**SECOND YEAR**

**DESIGN AND ANALYSIS OF ALGORITHMS**

**Time: 3 Hours**

**Maximum Marks: 75**

**PART - A**

**(5 × 5 = 25 Marks)**

**Answer any FIVE questions.**

1. What is meant by performance profile? Explain briefly.
2. Write notes on testing.
3. Explain the term 'a priori estimate'.
4. Explain the operations of Queue.
5. What is meant by backtracking? Explain
6. What is binary search? Give example.
7. What is a dynamic tree table? Illustrate with an example.

**PART - B**

**(5 × 10 = 50 Marks)**

**Answer any FIVE questions.**

8. Explain the methods used to analyse an algorithm.
9. Explain the concepts of sub goals, hill climbing and working backward using a single example.
10. What is meant by ordered list? Explain the algorithm used to create it.
11. Explain the branch and bound technique with an example.
12. Explain K-way merge sort with an example.
13. Explain the algorithm for Binary Tree insertion with an example.
14. Write detail notes on simulation.

**M.C.A. DEGREE EXAMINATION - DECEMBER - 2020**  
**COMPUTSER APPLICATION**  
**SECOND YEAR**  
**ACCOUNTING AND FINANCE ON COMPUTERS**

**Time: 3 Hours**

**Maximum Marks: 75**

**PART - A**

**(5 × 5 = 25 Marks)**

**Answer any FIVE questions.**

1. Explain the functions of accounting.
2. How cash flow statement differs from funds flow statement?
3. What do you understand by ratio analysis? State the uses of ratio analysis.
4. What is meant by working capital? Explain the dangerous of Excess working capital.
5. What is financial leverage? What are the significance of financial leverage?
6. Sales Rs. 1,00,000  
 Profit Rs. 10,000  
 Variable cost 70%  
 Find out (a) P/V ratio (b) Fixed cost (c) Sales volume to earn a profit of Rs. 40,000.
7. From the following details, Calculate stock turnover ratio :
 

	Rs.
Sales	78,000
Gross profit	36,480
Opening stock	15,920
Closing stock	14,400

**PART - B**

**(5 × 10 = 50 Marks)**

**Answer any FIVE questions.**

8. What are accounting concepts? Name them and explain in details.
9. Define different types of accounting. What are the advantages of it?
10. Define budgetary control and state its advantages.
11. X Y Ltd., a multi-product company furnishes you the following data relating to year.  
 Assuming that the cost structure and selling prices remains the same. Find out.
  - (a) P/V ratio
  - (b) Break even sales.

- (c) Profit when sales are Rs. 1,00,000  
 (d) Sales required to earn a profit of Rs. 20,000.

Period	Sales	Profits
I	1,20,000	9,000
II	1,40,000	13,000

12. You are given the following data for the year 2004 of the company.

Variable cost	Rs. 6,00,000
Fixed cost	Rs. 3,00,000
Net profit	Rs. 1,00,000
Sales	Rs. 10,00,000

Find (a) P/V Ratio (b) Break-even point (c) Profit when sales amounted to Rs. 12,00,000 (d) Sales required to earn a profit of Rs. 2,00,000.

13. The expenses budget for production of 10,000 units in a factory are given below :

	Rs. per unit
Materials	70
Labour	25
Variable overheads	20
Fixed overheads (1,00,000)	10
Variable overheads (Direct)	5
Selling expenses (10% fixed)	13
Administration expenses (Rs. 50,000)	5
Distribution expenses (20% fixed)	7
	<u>155</u>

Prepare a budget of production (a) 8,000 units (b) 6,000 units. Assume that the administration expenses are rigid for all levels of production.

14. Debtor velocity : 3 months

Creditor velocity : 2 months

Stock velocity : 8 times

Fixed assets turnover ratio : 8 times

Gross profit turnover ratio : 25%

Gross profit in a year amounted to Rs. 80,000. Closing stock is 2,000 than the opening stock. Bills receivable and bills payable are Rs. 5,000 and Rs. 2,000 respectively. Find out (a) Sales (b) Sundry debtors (c) Closing stock (d) Sundry creditors (e) Fixed assets.



**M.C.A. DEGREE EXAMINATION - DECEMBER - 2020****COMPUTER APPLICATION****SECOND YEAR****COMMUNICATION SKILLS****Time: 3 Hours****Maximum Marks: 75****PART - A****(5 × 5 = 25 Marks)****Answer any FIVE questions.**

1. Describe the communication process.
2. List the various dimensions of non-verbal communications.
3. What are the causes of poor listening?
4. What are the four important components of language-related skill? Brief on them.
5. What do you know about brain storming?
6. You are supposed to address a group of audience. What suggestions will help you in planning for the presentation?
7. Give and explain any five symbols that are in vogue for notes making.

**PART - B****(5 × 10 = 50 Marks)****Answer any FIVE questions.**

8. What are the various diagnostic models aiding in understanding oral communications?
9. What is downward communication? How would you arrest effectively the information loss in the process?
10. What are the attributes of a good conversationalist?
11. What are different types of interviews?
12. What do you mean by negotiation? What are the qualities of a good negotiator?
13. "A voracious reader is a prolific writer; a good listener is an orator". Narrate the inter-twinned nature of the skills set outlined by the statement.
14. Give some examples of nonverbal behavior and its body language interpretation.

**M.C.A DEGREE EXAMINATION - DECEMBER - 2020****COMPUTER APPLICATION****SECOND YEAR****COMPUTER NETWORKS****Time: 3 Hours****Maximum Marks: 75****PART - A****(5 × 5 = 25 Marks)****Answer any FIVE questions.**

1. Define computer network and explain its usage.
2. Compare OSI and TCP/IP reference models.
3. Define switching and explain switching techniques.
4. Short notes about coaxial cable.
5. Write notes on Fiber Optics technology.
6. Write short notes on transport protocols.
7. Discuss about Distance Vector Routing.

**PART - B****(5 × 10 = 50 Marks)****Answer any FIVE questions.**

8. Describe the function of different layers in the OSI reference model.
9. Explain about communication satellites.
10. Discuss about Satellite Networks.
11. Explain Data Link Layer services to Network Layer.
12. Explain the MAC layer for medium access.
13. Explain multicast routing and link state routing algorithms.
14. Explain two IEEE design approaches for designing bridges between LANs.

## M.C.A DEGREE MODEL EXAMINATION - DECEMBER - 2020

## COMPUTER APPLICATION

## SECOND YEAR

## OPERATIONS RESEARCH

Time: 3 Hours

Maximum Marks: 75

## PART - A

(5 × 5 = 25 Marks)

Answer any FIVE questions.

1. Classify the OR model and explain
2. Explain the linear programming problems.
3. What are the characteristic of dynamic programming problems?
4. Describe the Vogel's approximation method.
5. Describe the applications of Goal Programming.
6. Solve the game whose pay off matrix is given

	Player B		
	B <sub>1</sub>	B <sub>2</sub>	B <sub>3</sub>
Player A	1	3	1
	0	-4	-3
	1	5	-1

7. What are the Limitations of simulation?

## PART - B

(5 × 10 = 50 Marks)

Answer any FIVE questions.

8. Use simplex method to solve :

$$\text{Max } z = x_1 - x_2 + 3x_3$$

Subject to the constraints :

$$x_1 + x_2 + x_3 \leq 10$$

$$2x_1 - x_3 \leq 2$$

$$2x_1 - 2x_2 + 3x_3 \leq 0$$

$$x_1, x_2, x_3 \geq 0 .$$

9. Solve the following L.P.P by the graphical method

$$\text{Maximize } Z = 3x_1 + 2x_2$$

Subject to

$$-2x_1 + x_2 \leq 1$$

$$x_1 \leq 2$$

$$x_1 + x_2 \leq 3 \text{ and } x_1, x_2 \geq 0.$$

10. Find the optimum solution for the following transportation problem.

		Destination				Supply
		D <sub>1</sub>	D <sub>2</sub>	D <sub>3</sub>	D <sub>4</sub>	
Origin	O <sub>1</sub>	11	13	17	14	250
	O <sub>2</sub>	16	18	14	10	300
	O <sub>3</sub>	21	24	13	10	400
Demand		200	225	275	250	

11. By dynamic programming technique, solve the problem

$$\text{Min } Z = x_1^2 + x_2^2 + x_3^2$$

Subject to constraints

$$x_1 + x_2 + x_3 \geq 15$$

$$\text{and } x_1, x_2, x_3 \geq 0.$$

12. A manufacturer has to supply his customer with 600 units of his products per year. Shortage is not allowed and storage cost amounts to 60 paise per unit per year. The set up cost is Rs. 80.00 find

- The economic order quantity.
- The minimum average yearly cost.
- The optimum number of orders per year.

13. In a railway marshalling yard, goods trains arrive at a rate of 30 trains per day. Assuming that the inter – arrival time follows an exponential distribution and the service time distribution is also exponential with an average 36 minutes. Calculate the following :

- The mean queue size
- The probability that the queue size exceeds 10
- If the input trains increases to an average 33 per day, what will be the change in (a) and (b)?

14. Solve the following game by using the principle of dominance :

		Player B					
		I	II	III	IV	V	VI
Player A	1	4	2	0	2	1	1
	2	4	3	1	3	2	2
	3	4	3	7	-5	1	2
	4	4	3	4	-1	2	2
	5	4	3	3	-2	2	2

**M.C.A DEGREE EXAMINATION - DECEMBER - 2020****COMPUTER APPLICATION****SECOND YEAR****OPERATING SYSTEMS****Time: 3 Hours****Maximum Marks: 75****PART - A****(5 × 5 = 25 Marks)****Answer any FIVE questions.**

1. What are the services of operating system?
2. What is an Interrupt? Explain.
3. What are the conditions for deadlock to happen?
4. What are the states of a process?
5. Explain 'page fault'.
6. List out the requirements of memory management scheme.
7. What is meant by blocked records and buffering? Explain

**PART - B****(5 × 10 = 50 Marks)****Answer any FIVE questions.**

8. Explain the characteristics of modern operating system.
9. What is meant by spooling? Explain with diagram.
10. Define interprocess communication and also explain the producer – consumer problem.
11. Explain logical and physical address space with respect to memory management scheme.
12. What is meant by page replacement? Explain optimal page replacement algorithm.
13. Write in detail about fixed and equal multiple partition memory management scheme.
14. What is meant by user authentication? Classify the types of authentication mechanism.

**PG-C-907**

**MCA-18**

**M.C.A. DEGREE EXAMINATION - DECEMBER - 2020**  
**COMPUTER APPLICATION**  
**SECOND YEAR**

**OBJECT ORIENTED ANALYSIS AND DESIGN**

**Time: 3 Hours**

**Maximum Marks: 75**

**PART - A**

**(5 × 5 = 25 Marks)**

**Answer any FIVE questions.**

1. What is Object Oriented Development and explain the object oriented methodologies.
2. Discuss about Aggregation in detail.
3. What are the Data Flow Diagrams? Explain.
4. Explain about object modeling.
5. Write short notes on robustness.
6. Explain how implementation work is carried out in Computer Animation.
7. Discuss about Computer animation.

**PART - B**

**(5 × 10 = 50 Marks)**

**Answer any FIVE questions.**

8. With some real time examples, describe how relationship among objects are implemented.
9. Explain in detail about advanced dynamic modeling concepts with its relevant example.
10. Illustrate the advanced dynamic modeling concepts.
11. Discuss the overview of system design. Explain about sub systems.
12. Explain the analysis phase of the object diagram compiler.
13. Explain how the object design and system design work is carried out for Electrical Distribution Design system.
14. Discuss in detail about non-object oriented languages.



**M.C.A DEGREE EXAMINATION - DECEMBER - 2020****COMPUTER APPLICATION****SECOND YEAR****INTERNET PROGRAMMING****Time: 3 Hours****Maximum Marks: 75****PART - A****(5 × 5 = 25 Marks)****Answer any FIVE questions.**

1. Write a note on history of Internet.
2. Write a note on character formatted tags.
3. Explain hyperlink in HTML.
4. What is the purpose of scripting?
5. Java is a platform independent - Justify.
6. Explain Java Booleans with examples.
7. What is constructor? Explain it with an example.

**PART - B****(5 × 10 = 50 Marks)****Answer any FIVE questions.**

8. Explain the different applications of internet.
9. Write the basic structure of HTML.
10. Explain the importance and methods to implement interface in Java.
11. Explain Java bit wise operators with example.
12. How many frameset elements divide the screen? What measures may be used?
13. Explain form validation in Java script with an example.
14. What are the different operators used in Java? Explain.



**M.C.A. DEGREE EXAMINATION - DECEMBER - 2020****COMPUTER APPLICATION****SECOND YEAR****VISUAL PROGRAMMING****Time: 3 Hours****Maximum Marks: 75****PART - A****(5 × 5 = 25 Marks)****Answer any FIVE questions.**

1. Explain the overview of windows programming.
2. What are the steps involving in building VB application?
3. What is a component? Discuss.
4. Explain about different controls in Visual Basic.
5. How to create a database application in VB? Explain.
6. How to initialize the member objects in VC++?
7. Explain the concept of Exception Handling.

**PART - B****(5 × 10 = 50 Marks)****Answer any FIVE questions.**

8. Discuss about the VB string manipulation functions in detail.
9. How to create a user defined function? Explain with suitable examples.
10. Explain VC++ Components and Resources.
11. Brief about File Handling Task and How to open, read and write a file.
12. Discuss about the Document view architecture in detail.
13. Explain the key concepts of DLL in Visual C++.
14. Explain database programming through ODBC.

**M.C.A. DEGREE EXAMINATION - DECEMBER - 2020**  
**COMPUTER APPLICATION**  
**THIRD YEAR**  
**RELATIONAL DATABASE MANAGEMENT SYSTEMS**

**Time: 3 Hours****Maximum Marks: 75****PART - A****(5 × 5 = 25 Marks)****Answer any FIVE questions.**

1. Define Schema and Subschema. Explain the different levels of Data Abstraction.
2. With relevant example, describe the Second Normal Form (2NF).
3. Discuss the use of the following in Data Definition Language :
  - (a) ON DELETE CASCADE
  - (b) ON DELETE SET NULL
4. List the advantages of Client/Server Technology.
5. Write the benefits of SQL.
6. With syntax explain the Date functions of ORACLE.
7. What is Embedded SQL? Discuss the same with an example.

**PART - B****(5 × 10 = 50 Marks)****Answer any FIVE questions.**

8. With an example discuss Entities, Attributes and Mapping CARDINALITIES.
9. List out and discuss the purpose of Network System Tables in Oracle 8 i / 9 i.
10. With relevant examples discuss the use of the following in SQL :
  - (a) GROUP BY (4)
  - (b) HAVING (3)
  - (c) ORDER BY (3)
11. Describe the Logical and Physical database structure.
12. Create an oracle program for student mark processing.
13. What is a Trigger? Explain the different types of database triggers.
14. Discuss the languages supported by Oracle Pre-compiler.

**M.C.A. DEGREE EXAMINATION - DECEMBER - 2020**  
**COMPUTER APPLICATION**  
**THIRD YEAR**  
**CLIENT SERVER TECHNOLOGY**

**Time: 3 Hours**

**Maximum Marks: 75**

**PART - A**

**(5 × 5 = 25 Marks)**

**Answer any FIVE questions.**

1. What is Scalability? Discuss.
2. Discuss the advantages of Client/Server computing.
3. Write short notes on NetWare.
4. Write short notes on Banyan protocols.
5. What is Remote Method Invocation? Discuss.
6. What are distributed objects? Discuss.
7. List out the ODBC client components for UNIX.

**PART - B**

**(5 × 10 = 50 Marks)**

**Answer any FIVE questions.**

8. List and discuss the software packages that run on a client machine.
9. List and discuss the different categories of servers that promote sharing of data in a client server environment.
10. Discuss the features of Banyan Vines.
11. Explain about ISDN.
12. What is asynchronous transfer mode? Discuss.
13. Discuss the major hardware components of client/server environment.
14. List and discuss the features of Power Builder.

**M.C.A. DEGREE EXAMINATION - DECEMBER - 2020**  
**COMPUTER APPLICATION**  
**THIRD YEAR**  
**MULTIMEDIA SYSTEMS**

**Time: 3 Hours**

**Maximum Marks: 75**

**PART - A**

**(5 × 5 = 25 Marks)**

**Answer any FIVE questions.**

1. List any two multimedia OS and write the feature of it.
2. Explain time-based authoring tools.
3. Distinguish between Analog and Digital Audio.
4. What is Compression? List and discuss the different types of Compression.
5. Discuss how evaluate compression performance.
6. Write short note on object oriented concept in multimedia.
7. List and discuss the different Image File Formats.

**PART - B**

**(5 × 10 = 50 Marks)**

**Answer any FIVE questions.**

8. Discuss about multimedia applications.
9. Explain any two multimedia development tools.
10. List and discuss the steps involved in development of Multimedia Project.
11. Discuss the procedure involved in Digital Music Production Process.
12. Explain various storage devices used in multimedia.
13. Explain principles of animation.
14. Present a Tutorial on “Multimedia Networks”.

**M.C.A. DEGREE EXAMINATION - DECEMBER - 2020**  
**COMPUTER APPLICATION**  
**THIRD YEAR**  
**DISTRIBUTED COMPUTING**

**Time: 3 Hours**

**Maximum Marks: 75**

**PART - A**

**(5 × 5 = 25 Marks)**

**Answer any FIVE questions.**

1. Compare tightly coupled and loosely coupled systems in terms of delay and data rates.
2. What is the difference between computation migration and process migration? Discuss.
3. Discuss about asynchronous protocol.
4. Explain atomicity in distributed environment.
5. Explain file replication.
6. When is it useful to have replication or fragmentation of data? Explain your answer.
7. List the techniques and discuss any one technique through which fault tolerance can be achieved in distributed systems.

**PART - B**

**(5 × 10 = 50 Marks)**

**Answer any FIVE questions.**

8. List and discuss the different kinds of transparency in distributed systems.
9. Explain switching strategies in distributed system.
10. Define deadlock. Explain how to prevent deadlock.
11. List and discuss the various design issues for threaded packages.
12. What is a Transaction? Discuss the properties that must be satisfied by a Transaction.  
Give relevant example
13. Explain Bully algorithm.
14. With relevant example discuss distribute query processing.

**M.C.A. DEGREE EXAMINATION - DECEMBER - 2020****COMPUTER APPLICATION****THIRD YEAR****NETWORK PROGRAMMING****Time: 3 Hours****Maximum Marks: 75****PART - A****(5 × 5 = 25 Marks)****Answer any FIVE questions.**

1. What can a Java Script do?
2. List and discuss various way to create Activex controls.
3. What are the types of Automation servers?
4. What are the basic services of Hyperlinking?
5. Discuss about Hyperlink Interface.
6. Explain ISAPI extension.
7. How does ActiveX/COM impact computer-based measurement and automation?

**PART - B****(5 × 10 = 50 Marks)****Answer any FIVE questions.**

8. List and discuss the various element in Activex Scripting.
9. Discuss about UBX, OCX.
10. Explain ActiveX document view architecture in detail.
11. Discuss various functions of Hyperlinking.
12. Explain ISAPI classes.
13. Discuss how to retrieve database data in activex DLL.
14. Explain the structure of DHTML applications and write its applications.