

M.C.A First Year MAY 2006

Paper I - MATHEMATICAL FOUNDATIONS OF COMPUTER SCIENCE

Time: Three hours

Maximum: 100 marks

PART A

Answer ALL questions.

(8 x 5 =40 marks)

1. (a) Construct the truth table for $(P \rightarrow Q) \wedge (Q \rightarrow P)$. Or
 (b) Obtain disjunctive normal form of $\neg(P \vee Q) \Leftrightarrow (P \wedge Q)$.
2. (a) Show that $R \wedge (P \vee Q)$ is a valid conclusion from the premises $P \vee Q$, $Q \rightarrow R$, $P \rightarrow M$ and $\neg M$.
 (b) Show that $P \vee Q$ follows from P .
3. (a) Discuss the connection between groups and monoids. Or
 (b) Prove that the intersection of any two subgroups of a group G is again a subgroup of G .
4. (a) Define a cyclic group. Also prove that every cyclic group G is abelian. Or
 (b) Define a field. Give a suitable example.
5. (a) Show that the function f defined by $f(x) = X/2$ when X is even
 $= X - 2$ when X is odd, primitive recursive.
 Or
 (b) Show that the set of divisions B of a positive integer n is recursive.
6. (a) Define posets with an example. Let (L, \leq) be a poset and $a_1, a_2 \in L$. If a_1 and a_2 have a greatest lower bound (GLB), then show that this GLB is unique. Or
 (b) Let $(L, ;, ;)$ be a lattice and $a, b, c \in L$. Then prove that $a \oplus a = a$ and $a * a = a$.
7. (a) Explain Normal forms. Or
 (b) Find a grammar G such that $L(G) = \{ a^n b^n : n \geq 1 \}$.
8. (a) Explain Pumping Lemma. Or
 (b) Design finite state automata that accepts precisely those strings over $\{a, b\}$ that contains an odd number of a 's.

PART B

Answer ALL questions.

(5 x 12 =60 marks)

9. (a) (i) Explain the difference between direct proof and indirect proof with suitable examples.
 (ii) Without constructing a truth table, show that $A \wedge E$ is not a valid consequence of $A \leq B$, $B \leq (C \wedge D)$, $C \leq (A \vee E)$, $A \vee E$. Or

- (b) (i) Derive $P \rightarrow (Q \rightarrow R)$, $Q \rightarrow (R \rightarrow S) \Rightarrow P \rightarrow (Q \rightarrow S)$ using rule CP if necessary.
- (ii) Using indirect method if needed, prove that $(R \rightarrow \neg Q)$, $R \vee S$, $S \rightarrow \neg Q$, $P \rightarrow Q = \neg P$.
10. (a) (i) Show that every cyclic monoid is commutative.
- (ii) Prove that a commutative ring $(R, +, \cdot)$ is an integral domain if and only if the Cancellation law $a \cdot b = a \cdot c$ and $a \neq 0 \Rightarrow b = c$, $a, b, c \in R$ holds.

Or

- (b) State and prove Lagrange's theorem.
11. (a) (i) Let (L, \leq) be a lattice. Then show that for any $a, b, c \in L$, the distributive inequalities.

$$a \oplus (b * c) \leq (a \oplus b) * (a \oplus c)$$

$$a * (b \oplus c) \geq (a * b) \oplus (a * c) \text{ are true.}$$

- (ii) Show that in a lattice (L, \leq) , for any $a, b, c \in L$ $a \leq c \Leftrightarrow a \oplus (b * c) \leq (a \oplus b) * c$ is valid.

- (b) (i) In any Boolean algebra, show that $a \leq b \Rightarrow a + bc = b(a + c)$

- (ii) Show that

$$[a * (b' \oplus c)]' * [b' \oplus (a * c)']' = a * b * c'$$

12. (a) Simplify the Boolean function $\Sigma(0,3,4,5,6,7,9,10)$. Or
- (b) Explain the four classes of grammars with example. What is the relation between them?

13. (a) Let $M = (\{q_0, q_1, q_2\}, \{a, b\}, \delta, q_0, \{q_2\})$ is a finite automaton where δ is given by

$$\delta(q_0, a) = q_1, \quad \delta(q_0, b) = q_2, \quad \delta(q_1, a) = q_1,$$

$$\delta(q_1, b) = q_2, \quad \delta(q_2, a) = q_1, \quad \delta(q_2, b) = q_0. \text{ Then find}$$

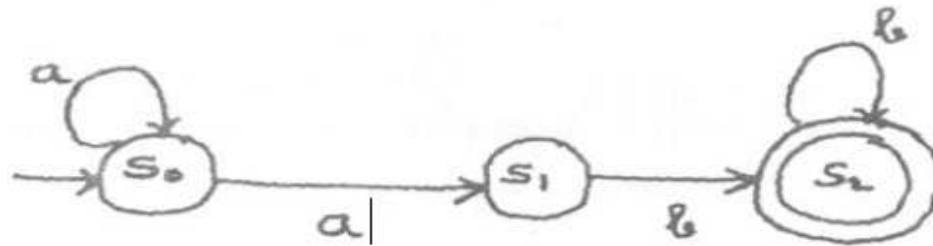
(i) $\delta(q_0, abab)$

(ii) $\delta(q_2, bbab)$

(iii) $\delta(q_1, \epsilon)$.

Or

- (b) Construct a deterministic finite state automation (FA) equivalent to an NFA with the following transition diagram.



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Paper – II FINANCIAL MANAGEMENT AND ACCOUNTING

Time: Three hours

Maximum: 100 marks

SECTION A

Answer ALL the questions.

(8 x 5 =40 marks)

- 1. (a) State the rules of double entry system and explain the advantages of double entry system of Bookkeeping?

Or

- (b) What is trial balance? Why is it prepared?

- 2. (a) Distinguish between Profit and Loss account and Balance sheet.

Or

- (b) Explain the role of ratio analysis in the interpretation of financial statements.

- 3.(a) What do you mean by variance analysis?

Or

- (b) What are the objectives of budgetary control?

- 4. (a) What are the limitations of funds flow statement? ..

Or

- (b) Give five points of differences between cost accounting and financial accounting.

- 5. (a) Determine the value of closing stock from the following details.

Sales Rs. 4,00,000
 G.P. ratio 10% on sales
 Stock velocity 4 times

Closing stock was Rs. 10,000 in excess of opening stock.

Or

- (b) From the following balances extracted at the close of the year ended 31st December, 1998, prepare the profit and loss alc as at that date:

	Rs.
Gross profit	1,53,000
Carriage outward	7,500
Salaries	27,500
Discount (Dr.)	1,500

Apprentice premium (Cr.)	4,500
Rent	3,300
Travelling expenses	600
Fire insurance premium	2,700
Rates and taxes	1,050
Printing and stationary	750
Trade expenses	900
Bad debts	6,300

6. (a) What do you mean by perpetual inventory?

Or

(b) A worker completes a job in a certain number of hours. The standard time allowed for the job is 10 hours, and the hourly rate of wages is Re. 1. The worker earns at the 50% rate of bonus Rs. 2' under Halsey plan.

Ascertain his total wages under the Rowan Premiurn Plan.

7. (a) What do you mean by labour turnover?

Or

(b) Distinguish between Balance sheet and Fund Flow Statement.

8. (a) What are the advantages of standard costing?

Or

(b) From the following data calculate:

(i) *PN* ratio

(ii) Profit when sales are Rs. 20,000

(iii) Fixed expenses Rs. 4,000

(iv) Break even sales Rs. 10,000.

SECTION B

Answer ALL the questions.

(5 x 12 = 60 marks)

9. (a) "Marginal costing is a valuable aid for Managerial Decisions" - Discuss.

Or

(b) Explain the procedures for the preparation of fund flow statement.

10. (a) Define the term "financial statements". Discuss their purposes.

Or

(b) Prepare Trading and Profit and Loss alc for the year ended 31st December, 1990 and Balance Sheet as at that date from the following Trial Balance of A.

	Debit	Credit
	Rs.	Rs.
Capital <i>alc</i>		50,000
Plant & Machinery	80,000	
Sales		1,77,000

Purchases	60,000	
Returns	1,000	750
Opening stock	30,000	
Discount	350	800
Bank charges	75	
Sundry Debtors	45,000	
Sundry creditors		25,000
Salaries	6,800	
Wages	10,000	
Carriage inwards	750	
Carriage outwards	1,200	
Bad debts provision		525
Rent, rates & taxes	10,000	
Advertisement	2,000	
Cash in hand	900	
Cash at Bank	6,000	
	-----	-----
	2,54,075	2,54,075
	-----	-----

The following adjustments required

- (i) Closing stock Rs. 35,000/-
- (ii) Depreciation on plant at 6% p.a
- (iii) Bad debts provision to be adjusted to Rs. 500/-

11. (a) From the following details prepare statement of proprietary funds with as many details as possible.

- (i) Stock velocity 6
- (ii) Capital turnover ratio (on cost of sales)
- (iii) Fixed assets turnover ratio (on cost of sales)
- (iv) Gross profit turnover ratio 20 percent
- (v) Debtors' velocity 2 months
- (vi) Creditors velocity 73 days.

The gross profit was Rs. 60,000. Reserves and surplus amount to Rs. 20,000. closing stock was Rs. 5,000 in excess of opening stock.

Or

(b) ABC Ltd., has given the following particulars. You are required to prepare cash budget for the period April to June 2000.

(i)	Credit Sales	Purchase	Wages
2000			
February	1,80,000	1,24,800	12,000
March	1,92,000	1,44,000	14,000

April	1,08,000	2,43,000	11,000
May	1,74,000	2,46,000	10,000
June	1,26,000	2,68,000	15,000

(ii) 50 percent of credit sales are realized in the month following the sales and the remaining 50 percent in the second month following.

Creditors are paid on the month following the month of purchase.

(iii) Cash at bank on 1.4.2000(estimated) Rs. 25,000.

12. (a) "Costs may be classified in a variety of ways according to their nature and the information needs of the management". Explain.

Or

(b) Write short notes on:

(i) Bin Card.

(ii) Bill of materials.

(iii) Fringe benefits.

(iv) Job card.

13. (a) Following information has been made available from the cost records of United Automobiles Ltd., manufacturing spare parts.

	Per Unit
Direct Materials	
X	Rs.8 .
Y	Rs.6
Direct wages	
X	24 hours at 25 paise per hour
Y	16 hours at 25 paise per hour
Variable overheads	150% of wages
Fixed overheads	Rs. 750
Selling price	
X	Rs.25
Y	Rs.20

The directors want to be acquainted with the desirability of adopting anyone of the following alternative sales mixes in the budget for the next period.

(i) 250 units of X and 250 units of Y

(ii) 400 units of Y only

(iii) 400 units of X and 100 units of Y

(iv) 150 units of X and 350 units of Y.

State which of the alternative you would recommend to the management

Or

(b) From the following data, calculate

(i) Labour cost variance

(ii) Rate variance

(iii) Efficiency variance

- (iv) Mix variance
- (v) Labour sub-efficiency variance.

	Standard		Actual	
	Hours	Rate	Hours	Rate
Skilled labour	10	3.00	9,000	4.00
Semi-skilled	8	1.50	8,400	1.50
Unskilled	16	1.00	20,000	0.90

The actual production was 1,000 articles.

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Paper III - PROGRAMMING IN C

Time: Three hours
PART A

Answer ALL questions.

Maximum: 100 marks
(8 x 5 =40 marks)

1. (a) When should parentheses be included within an expression? In what order the operations are carried out within an expression that contains nested parentheses?

Or

(b) Explain about the following:

(i) Break

(ii) Continue

2. (a) How can the getchar and putchar character function be used to read and write multicharacter strings?

Or

(b) What is the purpose of the goto statement? Summarize the syntactic rules associated with the goto statement.

3. (a) What is the relationship between formal arguments and actual arguments? How they can be declared within a function?

Or

(b) In what way is the initialization of an external variable more restricted than the initialization of an automatic variable? Explain.

4. (a) What advantage is there in using function prototypes within a program?

Or

(b) What is the purpose of the following:

(i) Header file

(ii) Static function in a multifile program.

5. (a) How is an array name interpreted? When it is passed to a function? Explain with example.

Or

(b) How a multidimensional array defined in terms of a pointer? Explain.

6. (a) Explain the processing of an array with suitable example.

Or

(b) Write the short notes on pointers and one dimensional arrays.

7. (a) How can an entire structure be passed to a function and returned from a function? Discuss in detailed manner.

Or

(b) In what sense can unions, structures and arrays be intermoved? Explain.

8. (a) Write short notes on

- (i) fopen, fclose
- (ii) fread, fwrite.

Or

Discuss about the purpose of library function feof?

PART B

Answer ALL questions.

(5 x 12 =60 marks)

9. (a) Briefly explain about the various types of operators involved in formation of expressions?

Or

(b) Explain in detail about the following.

- (i) If else statement
- (ii) Switch statement ..
- (iii) Continue statement
- (iv) Break statement.

10. (a) Write a complete C program to create an array of names and inserted in alphabetical order, interactively.

Or

(b) Write a C program that includes a recursive function to determine the value of the *n*th Fibonacci . number *F_n*.

11. (a) Write a C program that will enter a line of text, store it in an array and then write it out backwards. Assume that the length of the line will not exceed 80 characters.

Or

(b) Explain in detail about arrays of pointers and use it for finding product of two into arrays.

12. (a) Write a C program that reads several different names and addresses, rearrange the names into alphabetical order, and then writes out the alphabetized list. Make use of structure variables within the program.

Or

(b) Describe the term union. How does a union differ from structure? Explain.

13. (a) Describe the term standard data files and storage classes. Explain with a suitable C program.

Or

(b) Briefly explain about the following:

- (i) Creating a stream-oriented data file.
- (ii) Processing a stream-oriented data file.

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Paper – IV DIGITAL PRINCIPLES AND COMPUTER ORGANIZATION

Time: Three hours

Maximum: 100 marks

PART A

Answer ALL questions.

(8 x 5 = 40 marks)

1. (a) Write a brief note on BCD number representation.

OR

(b) Briefly explain the Basic Duality principle of Boolean algebra.

2. (a) What are PLA's? Briefly explain.

Or

(b) Explain the principle of operation of NOR gate.

3. (a) Write a brief note on R-S flip flop.

Or

(b) Explain briefly the principle of operation of parallel binary adder.

4. (a) Write a brief note on master-slave flip flop.

Or

(b) Explain briefly the operation of a Binary coded decimal adder.

5. (a) Explain the main memory operations.

Or

(b) Explain the operation of a PUSH DOWN stack.

6. (a) Write a brief note on sequencing of control signals.

Or

(b) What is prefetching of micro instructions ? Briefly explain?

7. (a) Write a brief note on Grouping of control signals.

Or

(b) Write a brief note on Bit slices.

8. (a) Explain briefly the concept of virtual memory.

Or

(b) Write a brief note on semi conductor ROM memories.

PART B

Answer ALL questions.

(5 x 12 = 60 marks)

9. (a) Reduce the following expression using K-map and implement in universal logic

$$\sum m(0,1,2,3,4,6,8,9,10,11).$$

Or

(b) Explain in detail about NAND to NAND and NOR to OR gate networks.

10.(a) Describe in detail the principle of operation of a Binary counter.

Or

(b) Explain in detail the shift operation

11.(a) Describe in detail the different addressing methods.

Or

(b) Explain in detail about INPUT-OUTPUT programming.

12.(a) Explain in detail about distributed computing.

Or

(b) Describe in detail about micro programmed control.

13.(a) Explain in detail about multiple module memories and Inter leaving.

Or

(b) Describe in detail about memory management.

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Paper V - WINDOWS BASED PC SOFTWARE

Time: Three hours

Maximum: 100 marks

PART A

Answer ALL questions.

(8 x 5 = 40 marks)

1. (a) Explain the steps for installing windows applications.

Or

(b) Explain the different types of tabs?

2. (a) Differentiate between footnotes and end notes?

Or

(b) Explain the various ways of formatting a paragraph in a document?

3. (a) How do you create columns in a document?

Or

(b) How do you move and copy text in a word document?

4.(a) What do you mean by Templates and wizards?

Or

(b) What is Autosummarize? Explain its use?

5.(a) What are the various types of data that can be entered in a cell?

Or

(b) What are the various components of a chart?

6.(a) What are the steps involved in moving and copying?

Or

(b) Explain the various date and time functions in Excel.

7. (a) What are the various presentation options?

Or

(b) How do you send and receive an E-mail?

8. (a) How are Toolbox controls used in designing a form?

Or

(b) How do you create a Macro?

PART B

Answer ALL questions.

(5 x 12 = 60 marks)

9. (a) Discuss the various Built-in applications available in windows.
Or
(b) Explain the following:
- 10.(a) Explain the basic procedure for creating and applying a style in word.
Or
(b) Write short notes on Auto correct option with an example.
- 11.(a) Explain how to format a worksheet.
Or
(b) List out some additional formatting commands in Excel.
- 12.(a) What is Boot Virus? Explain how it can be eliminated to cure the system.
Or
(b) Explain how movies and sounds are inserted in a power point presentation.

MCA First Year May 2006

Paper VI GRAPH THEORY

Time: Three hours

PART A

Answer ALL questions.

Maximum: 100 marks

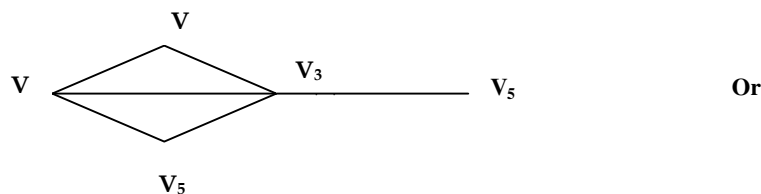
(8 x 5 = 40 marks)

1. (a) Establish the relation $\sum_k \binom{p}{k} \binom{q}{n-k} = \binom{p+q}{n}$ Or (b) If $\exp(at) = 1 + at + \frac{a^2t^2}{2!} + \frac{a^3t^3}{3!} + \dots$ prove that $\exp(a_1t) \exp(a_2t) = \exp(a_1+a_2)t$.
2. (a) If a graph has exactly two vertices of odd degree, prove that there must be a path joining these two vertices. Or (b) Explain the travelling-salesman problem.
3. (a) Define a Tree and prove that there is a unique path between every pair of vertices in a tree. Or(b) Prove that a graph is a tree if and only if it is minimally connected.
4. (a) Draw the two Kuratowski's graphs and state the properties common to these graphs. Or (b) Write a note on thickness and crossings in graphs.
5. (a) If B is a circuit matrix of a connected graph G with e edge and n vertices, prove that rank of B=e-n+1.Or (b) Define cut-set matrix C(G) and show that the rank of cut-set matrix is equal to the rank of the incidence matrix.

6. (a) Prove that in a tree every vertex with degree greater than one is a cut vertex. Or. (b) Prove that the vertex connectivity of any graph G can never exceed the edge connectivity of G .

7. (a) Prove that an arborescence is a tree in which every vertex other than the root has an in-degree of exactly one. Or (b) Explain the four-color conjecture.

8. (a) Define chromatic number and determine the chromatic number of the graph given below



(b) Prove that every tree with two or more vertices is 2-chromatic.

PART B Answer ALL questions. (5 x 12 = 60 marks)

9. (a) Define Euler graph. Prove that a connected graph G is an Euler graph if and only if all vertices of G are of even degree. Or (b) Define the terms eccentricity and center in a tree. Prove that every tree has either one or two centers.

10. (a) Define a cut-vertex. Prove that every connected graph with three or more vertices has at least two vertices that are not cut vertices. Or (b) Prove that a connected planar graph with n vertices and e edges has $e - n + 2$ regions.

11. (a) Define a bipartite graph. Prove that a graph is bipartite if and only if it contains no circuit of odd lengths. Or (b) Prove that every complete tournament has a directed Hamiltonian path.

12. (a) Show that the cycle index of the induced pair group R_3 is the same as that of 8_3 , Or (b) Prove that the maximum vertex connectivity one can achieve with a graph G on n vertices and e edges ($e = n - 1$) is the integral part of $2e/n$.

13. (a) Explain graph enumeration with Polya's theorem for simple graphs when $n = 3$ and $n = 4$. Or (b) Prove that there are $(n - 1)/2$ edge disjoint Hamiltonian circuits in a complete graph on n vertices if $n - 3$ is an odd integer.

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PAPER –VII SOFTWARE ENGINEERING

Time: Three hours

maximum: 100marks

PART A

Answer all questions

(8x5=40 marks)

1. (a) State the primary goal of software engineering and explain how to achieve the same. Or (b) List and explain the main objectives of software engineering.
2. (a) Explain the principles of working of large projects and extremely very large projects. Or State the various factors that influence quality and productivity.
3. (a) Explain Cost model of software life cycle. Or (b) Write short notes on matrix format.
4. (a) Explain break down example with a neat example. Or (b) explain the working and principle of Jackson's structured programming.
5. (s) State and explain various categories of software products. Or (b) Explain regular expression with a neat example.
6. (a) Enumerate the different between life cycle verification and formal verification. Or (b) Write short notes on: I) function tests. II) Stress tests.
7. (a) State and explain symbolic execution. Or (b) discuss on source code metrics.
8. (a) State and explain some of the automated tools for software maintenance. Or (b) explain the technique for assessing the structural characteristics of source code.

PART B

Answer ALL questions

(5x12=60 marks)

9. (a). Explain in detail about managerial issues of software engineering. Or (b) Explain phased life cycle method with a neat diagram.
10. (a). Discuss the process of developing a problem, developing a solution strategy and planning the development process. Or (b). Explain the process of petrinet having overcome the limitations of finite state mechanism.
11. (a). Explain the static analysis capabilities test. Or (b) State the development activities to enhance the software.
12. (a). Construct a transition table and a transition diagram to specify the operation of a bank teller machine. Or (b). State the various specifications of software requirements.

(a) Explain the fundamental concept of software design. Or (b) describe the managerial aspects of software maintenance.

M.C.A First Year May 2006

PAPER-VIII CLIENT/SERVER COMPUTING

Time: Three hours

Maximum: 100marks

PART A

Answer all questions

(8x5=40 marks)

1. (a) Discuss about the client /server development tools. Or (b) Write a note on integrated services.
2. (a) Write a note on user productivity of client/ server computing. Or (b) What is Request for service? Explain the basic service provided by the NOS.
3. (a) Discuss about the database services of client. Or (b) compare DDE and OLE
4. (a). Write note on Banyan Vines. Or (b) Discuss about the security services of server.
5. (a). Explain the network operating system. Or (b). Discuss about the LAN cabling.
6. (a). Explain the Internet working devices. Or (b) Write short notes on the following:
(i) WORM (ii) RAID-Disk Array.
7. (a) Explain the need for platform migration and reengineering of existing systems. Or (b) Write short note on the following: I) Reliability II) Serviceability.
8. (a) Discuss about operating system issues. Or (b) Explain the function of software distribution in service and support for client /server systems development.

PART B

Answer ALL questions

(5x12=60 marks)

9. (a) Explain in detail the right sizing and downsizing in client/server computing. Or (b). Explain the mainframe-centric in client/server computing.
10. (a). Briefly explain the client services. Or (b) Explain the following: I) CORBA. II) Fax/Print services III) Remote boot services.
11. (a) Discuss about the Database services of server. Or (b) Explain Novell Netware architecture with neat diagram.
12. (a) Explain in detail the OSI model. Or (b) Write a brief note on the following: I) ATM in the wide area network. II) CD-ROM

13. (a) Briefly discuss about the End user training in client/server development. Or (b) Explain the following functions in service and support for client/server systems development: i) Licensing.
ii) Serviceability iii) Remote System Management.

M.C.A First Year May 2006

PAPER –IX OBJECT ORIENTED PROGRAMMING IN C++

Time: Three hours

maximum: 100marks

PART A Answer all questions (8x5=40 marks)

1. (a) How are data and function organized in an object oriented programming language? Or (b). Differentiate between dynamic binding and static binding.
2. (a) What is an object and how objects can be defined in C++? Or (b) how do you invoke a constructor function? Explain with example.
3. (a) Explain with example, the concept of overloading unary operators. Or (b) what is the scope rules governing the function overloading?
4. (a) Explain about reference arguments and default arguments. Or (b) Explain virtual member function with suitable example.
5. (a) Describe the various file mode operations. Or (b) what is a stream? Discuss the various forms of get () functions supported by the input stream.
6. (a) Explain “this pointer” with a suitable example. Or (b) What is file mode? Describe the various file mode options available in C++.
7. (a) What is search tree? Or (b) what is a object? What are the desirable qualities of an object?
8. (a) Explain how would you create space for an array of objects using pointers. Or (b) explain how sequential input and output operations are done on files in C++.

PART B Answer ALL questions (5x12=60 marks)

9. (a) Explain with example, how is the data hiding and data encapsulation implemented in object oriented languages. Or (b) explain how is polymorphism used during software designing phase.

10. (a) How is data read in and read out in Binary file? List the advantages and disadvantages of using binary file with examples. Or Explain the physical organization of classes in C++ system
11. (a) What is the scope and lifetime of an object? How is it inter linked with Destructor functions? What is the necessary to have destructors in classes? Or (b) Explain with example, the concept of binary overloading and list the rules for overloading operators
12. (a). What is inheritance? Describe the hierarchical and hybrid inheritance with example. Or (b) In what order are the class constructors called when a derived class object is created? Explain with examples.
13. (a) What is a virtual function? Why do we need virtual function in OOPS? Or (b) briefly discuss on the design of super fast spelling checker.

M.C.A First Year May 2006

PAPER-X MICRO PROCESSOR AND PERSONAL COMPUTERS

Time: Three hours

maximum: 100marks

PART A

Answer all questions

(8x5=40 marks)

1. (a) Explain the Bus control and address control. Or (b) what are the advantages of 8080 microprocessor with relation to the execute cycles.
2. (a) What are the uses of stack pointer and instruction pointer? Or (b) what is logical address? The data segment base address is FFOOH. The logical offset address is 0321H. Find the physical address of memory.
3. (a) Explain how address decoding is used to interface the MPU and memory subsystem. Or (b) What are the functions of mode registers in the DMA controller chip?
4. (a) Explain the function of the bus subsystem. Or (b) what can be used as a method of handling multiple interrupts in a microcomputer system?
5. (a) Draw the system board block diagram. Explain. Or (b) what are the advantages of Winchester disk over floppy disk?
6. (a) Compare linear and switching power supply. Or (b) explain an interrupt driven system.

telephone booth in a post office arrivals are considered to Poisson with an average inter-arrival time of 12 minutes. The length of the phone. Call may be assumed to be distributed exponentially with an average of 4 minutes. Calculate the following: (i) What is the probability that a fresh arrival will not have to wait for phone? (ii) What is the probability that an arrival will have to wait more than 10 minutes before the phone is free?

- 5. (a) Give a brief outline of the revised simplex method. Or (b) Write down the dual of the following LPP Min $z = 4x_1 + 3x_2 - 2x_3$ Subject to $3x_1 + 6x_2 + 4x_3 \geq 6$ $7x_1 + x_2 + 2x_3 \geq 5$ $6x_1 - 2x_2 - x_3 \leq 9$ $2x_1 - x_2 + 3x_3 \geq 4$ $4x_1 + 6x_2 - x_3 \geq 2$ $x_1, x_2, x_3 \geq 0$.
- 6. (a) Explain some of the practical applications of Integer programming problem. Or (b) Explain how the assignment problem can be treated as a particular case of transportation problem.
- 7. (a) What are the unbalanced assignment problem? How are they solved? Or (b) Explain the nature of a travelling salesman problem and give its mathematical formulation.
- 8. (a) Explain the mechanism of queuing process by considering some illustration. Or (b) A customer owning a Maruti car right now has got the option to switch over to Maruti, Ambassador or Fiat next time with the probability (0.20, 0.5 and 0.30) given the transition matrix.

$$P = \begin{pmatrix} 0.40 & 0.30 & 0.30 \\ 0.20 & 1.00 & 0.30 \\ 0.25 & 0.25 & 0.50 \end{pmatrix}$$

Find the probabilities with his fourth purchase?

PART B Answer ALL questions. (5 x 12 = 60 marks)

- 9. (a) Solve the following LPP using simplex method Maximize $z = 3x_1 + 5x_2 + 4x_3$. Subject to $2x_1 + 3x_2 \leq 8$ $2x_2 + 5x_3 \leq 10$ $3x_1 + 2x_2 + 4x_3 \leq 15$ and $x_1, x_2, x_3 \geq 0$ Or (b) Use revised simplex method to solve the LPP. Minimize $z = -4x_1 + x_2 + 2x_3$ Subject to $2x_1 - 3x_2 + 2x_3 \leq 12$ $-5x_1 + 2x_2 + 3x_3 \geq 4$ $3x_1 - 2x_3 = -1$ and $x_1, x_2, x_3 \geq 0$.

10. (a) Use penalty method to solve the following LPP. Minimize $Z=4X_1+X_2$ Subject to $3X_1+X_2=3$ $4X_1 + 3X_2 \geq 6$ $x_1 + 2X_2 \leq 3$ and $X_1, X_2 \geq 0$. Or (b) Solve by the dual simplex method the following LPP Minimize $z = 5x_1 + 6X_2$ Subject to $X_1 + X_2 \geq 2$ $2x_1 + X_2 \geq 4$ $X_2 \geq 0$.
 (b) A fair die is tossed repeatedly. If X_n denotes the maximum of the numbers occurring in the first n tosses, find the transition probability matrix p of the Markov chain $\{X_n\}$. Find also p^2 and $P(X_2 = 6)$.

11. (a) A supermarket has two girls ringing up sales at the counters. If the service time for each customer is exponential with mean 4 minutes and if the people arrive in a Poisson fashion at the rate of 10 per hour (i) What is the probability of having to wait for service?(ii) What is the expected percentage of idle time for each girl?(iii) If a customer has to wait, what is the expected length of his waiting time. Or (b) Discuss the fields of application for queuing. Explain queue discipline and its various form.

12. (a) A travelling salesman has to visit 5 cities. He wishes to start from a particular city visit each city once and then return to his starting point cost of going from one city to another is shown below. You are required to find the least cost route.

	To city				
	A	B	C	D	E
A	00	4	10	14	2
B	12	00	6	10	4
From City C	16	14	00	8	14
D	24	8	12	00	10
E	2	6	4	16	00

Or (b) Find the optimum integer solution to the following linear programming problem
 Maximize $Z = X_1 + 2X_2$ Subject to $2X_1 + X_2 \leq 5$ $X_1 + X_2 \leq 7$ $x_1, X_2 \geq 0$ and are integers.

13. (a) Define the Markov 'property for a discrete space continuous time process. Prove that a process having independent and stationary increments is Markov.

M.C.A Second Year May 2006
PAPER-II COMPUTER GRAPHICS

Time: Three hours

maximum: 100marks

PART A

Answer all questions

(8x5=40 marks)

1. (a) Write short notes on Graphical User Interface. Or (b). Write an algorithm for line drawing and line commands.
2. (a) Write a note on bundled attributes. Or (b). What are the transformation commands?
3. (a). Write short note on window-to-view port. Or (b). Explain the following: I) Segment attributes. II) Segment files.
4. (a) Write a note on construction technique. Or (b). Give an account on input functions.
5. (a) Write short notes on 3D- Graphics packages are used in Animation. Or Write short notes on 3D-coordinate system.
6. (a)What does scaling mean? Give an example. Or (b) List out the various transformation of 3D images.
7. (a). Write short notes on Back face removal. Or (b) Write short notes on viewing transformation.
8. (a). Define Projection. Or (b) Write an algorithm for scan line method.

PART B

Answer all questions

(5*12=60 marks)

9. (a) Write short notes on the following: I) Display processors II) Circle-generation algorithm. Or (b). Explain the images processing display devices.
10. (a). Write short notes on Composite transformation and transformation commands. Or Write short notes on matrix representation and homogenous coordinates.
11. (a) Write short notes on workstation. Or (b) explain the line-clipping algorithm in detail.
12. (a). Write short notes on 3D-Translation, rotation in detail. Or (b). Write short notes on 3D-Display technique.
13. (a). Write short notes on the following: I) Hidden surface. II) Hidden-line removal. Or (b) Write short notes on the implementation of viewing operations and various projections.

M.C.A Second Year May 2006

PAPER-III SYSTEM SOFTWARE AND DESIGN

Time: Three hours

maximum: 100marks

PART A

Answer all questions

(8*5=40 marks)

1. (a). What is system analysis and design? Explain. Or (b). Distinguish between testing and evaluation.
2. (a) Explain the need for cost and benefit analysis. Or (b) what steps do investigators doing the preliminary investigation take? For what purpose are they taken?
3. (a) List the primary uses of a decision table. Or (b) explain the basic rules for drawing data flow diagrams.
4. (a). What is requirement determination? Explain. Or (b). List and explain the primary steps in interviewing.
5. (a). List and explain the various types of file. Or (b). Write short notes on database concepts.
6. (a). Explain the difference between sequential and direct access organizations. Or (b) List and explain the design objectives.
7. (a). Give the purpose of constructing HIPO diagrams. Or (b). What is assurance? Explain the various levels of assurance.
8. (a). What is the relational between conversion and system implementation? Explain. Or (b) List and explain about the financial factors.

PART B

Answer all questions

(5*12=60 marks)

9. (a). Explain in detail about the testing methods used to test project feasibility. Or (b) Discuss in detail about managing project review and selection.
10. (a). What elements comprise systems costs? What are the different categories of system costs? Explain. Or (b). Explain in detail about the strategies for cost/benefit comparison.
11. (a) Discuss in detail about the steps that should always be taken to develop and administer questionnaires. Or (b) how are data and processes described in a data dictionary? Explain briefly.

12. (a). What is system reliability? Discuss the approaches to system reliability. Which approach is preferred? Why?

Or

- (b) Discuss about any two methods of file organization in detail.
13. (a) Describe the purpose and contents of a conversion plan. Or (b). Discuss about the various factors involved in evaluation of the software.

M.C.A Second Year May 2006

PAPER-IV RELATIONAL DATABASE MANAGEMENT

Time: Three hours

maximum: 100marks

PART A

Answer all questions

(8x5=40 marks)

1. (a) List the advantages of RDBMS. Or (b). What is meant by entity set? Explain with an example
2. (a) Write short notes on tuple relational calculus. Or (b) what is an index? How it is used in RDBMS?
3. (a) Compare data retrieval in network model and hierarchical model. Or (b) Explain the concept based on relational database design with respect to repetition of information.
4. (a) What is view? Whether multiple view updations are applicable in RDBMS? Or (b). Explain about aggregate operators in detail.
5. (a). Explain the anomalies in relation database design. Or (b) Explain the BCNF with examples.
6. (a) Write short notes on snapshots. Or (b). What is RQBE? What is its role in database?
7. (a) Explain the theory of multi-valued dependencies. Or (b) Explain in detail about loss-less-join decomposition.
8. (a). What is distributed database? Where it is in high demand? Or (b) Write down the method of providing security to the relational database.

PART B

Answer ALL questions

(5x12=60 marks)

9. (a) Explain about different keys available in RDBMS and write down the significance each key with an example. Or (b) explain the different access methods and storage structures in RDBMS.

10. (a) Discuss the data modeling concepts in detail. Or (b). What is correlated sub query? Illustrate with an example of a correlated sub query projection and union operation as relational algebra expressions.
11. (a). Explain with example, the different operations in relational algebra. Or (b) Explain the following terms: I) Full functional dependency. II) Temporal Relational model. III) Repetition of information
12. (a) Explain in detail, the various stages involved in compiling a query with a neat diagram. Or (b) describe the security issues and integrity factors regarding database systems.
13. (a) Explain how will you normalize the given table to the third normal form, by assuming your own table. Or (b). Discuss in detail about database administration?

M.C.A Second Year May 2006

PAPER-V DATA STRUCTURE USING C++

Time: Three hours

maximum: 100marks

PART A

Answer all questions

(8x5=40 marks)

1. (a) Explain the basics of C++ languages. Or (b) what are abstract data types? Give example.
2. (a) Discuss the array as an Abstract Data types in detail. Or (b) Discuss the string as an Abstract Data type in detail.
3. (a). Discuss about templates in C++. Or (b). Explain in detail about inheritance.
4. (a). What are singly linked lists? Describe how to represent them in C++. Or (b) what are virtual functions? Give examples.
5. (a). What are circular lists? Give examples. Or (b). Give a brief account on linked stacks and queues.
6. (a). Discuss in detail about static hashing. Or (b). Give a detailed description about Binomial Heaps.
7. (a) What is a AVL Trees? Give examples. Or (b) Discuss in detail about optimal binary search trees.
8. (a) What are B trees? Give examples. Or (b). Describe the features of Heap structures

PART B Answer ALL questions (5*12=60 marks)

9. (a) Explain the following: I) Data Abstraction and encapsulation II) system life cycle.
10. (a) What are doubly linked lists? Describe how to represent them in C++. Or (b). Describe the following: I) A reusable linked list class. II) Dynamic binding in C++.
11. (a). What are binary trees? Explain the various binary tree traversals with examples. Or (b). Give a detailed description on threaded Binary Trees.
12. (a). Discuss in detail about optimal Binary search trees. Or (b). Write notes on the Following: I) AVL Trees. II) B-Trees.
13. (a) Discuss the various features of Hashing. Or (b). Give a detailed account on Heap Structure.

**MCA Second year MAY 2006
PAPER VI - COMPUTER BASED NUMERICAL METHODS**

Time : Three hours

Maximum: 100 marks

PART A Answer ALL questions. (8 x 5 = 40 marks)

1. (a) Use the Secant method to determine the root of the equation $x^4 - x - 10 = 0$.
Or
(b) Apply Newton - Raphson's method to determine a root of the equation $x - e^{-x} = 0$.
2. (a) Find 2 iterations with the Muller method for the following equation $X^3 - 1/2 = 0$ with $X_0 = 0$.
Or
(b) Find two iterations with the Chebyshev method for finding root of the equation $x = 1/2 + \sin x$ with $X_0 = 1$.
3. (a) Solve by Gauss elimination method for the following
$$\begin{aligned} x+y+z &= 3 \\ 2x-y+3z &= 16 \\ 3x+y-z &= -3. \end{aligned}$$

Or
(b) Solve by Triangularization method
$$\begin{aligned} x+5y+z &= 14 \\ 2x+y+3z &= 13 \\ 3x+y+4z &= 17. \end{aligned}$$

4. (a) Solve the following system of equation by using Gauss - Seidel method
- $$\begin{aligned}8x - 3y + 2z &= 20 \\ 4x + 11y - z &= 33 \\ 6x + 3y + 12z &= 35.\end{aligned}$$

Or

- (b) Find the inverse of $A =$
- $$\begin{matrix} 3 & -1 & 1 \\ 3 & -1 & 1 \\ 5 & -2 & 2 \end{matrix}$$
- using partition method.

5. (a) Using Lagrange's formula, fit a polynomial to the data.

X :	0	1	3	4
Y :	-12	0	6	12

- (b) Prove that $\Delta = 1/2 \delta^2 + \delta \sqrt{1 + \delta^2/4}$

6. (a) Using Newton's divided difference formula find $f(8)$ from the following data:

X :	4	5	7	10	11	13
F(x):	48	100	294	900	1210	2028

- (b) Find the approximate value of $f(2.0)$ and $f(2.0)$ using the method based on linear interpolation

X :	2.0	2.2	2.6
Y :	0.6932	0.7885	0.9555

7. (a) Compute $r(0.6)$ from the following table using the formula Richardson extrapolation.

x:	0.2	0.4	0.5	0.6	0.7	0.8	1.0
f(x):	1.42	1.88	2.13	2.39	2.66	2.94	3.56

With $h=0.2$.

Or

(b) Solve the equation $\frac{dy}{dx} = 1 - y$ given $y(0) = 0$

using Euler method for the solutions at $x = 0.1, 0.2, 0.3$

8. (a) Solve the initial value problem $y' = y = (2x/y)$, $y(0) = 1$ for $x = 0.1, 0.2$ using backward Euler method

Or

(b) Using mid-point method find $y(0.1), y(0.2)$ given $(dy/dx) = X^2 + y^2, y(0) = 1$.

PART B Answer ALL questions. (5 x 12 = 60 marks)

9. (a) Using Bairstow's method to obtain the quadratic factor of the equation

$X^4 - 3X^3 + 20X^2 + 44x + 54 = 0$ with $(p, q) = (2, 2)$ (perform three iterations).

Or

(b) Using Graeffe's root squaring method to find the roots of $X^4 - X^3 + 3X^2 + X - 4 = 0$.

10. (a) Find the largest eigen value of and the corresponding eigen vector.

(b) Find all the eigen values of the matrix.

$$\begin{pmatrix} 25 & 1 & 2 \\ 1 & 5 & 0 & 1 \\ 0 & -2 & 0 & \\ 2 & 1 & 0 & 5 \end{pmatrix}$$

11. (a) Obtain a linear polynomial to the function $f(x) = X^3$ on the interval [0,1] using the least square approximation.

Or

(b) Find the least squares approximation of second degree for the data.

x : 1 2 3 4 5

y : 5 12 26 60 97

12. (a) Calculate $\int_0^{0.8} (1 + \sin x/x) dx$ correct to four decimal places.

(Or)

(b) Evaluate $\int_1^5 \int_1^5 dx dy / (x^2 + y^2)^{1/2}$ using the trapezoidal rule.

13. (a) Given the initial value problem $u' = t^2 + u^2, u(0) = 0$ find the Taylor series for $u(t)$ and hence obtain $u(0.5)$
- (b) Solve the initial value problem $u' = -2tu^2, u(0) = 1$ with $h = 0.1$ for $x = 0.1, 0.2$. Use the fourth order classical Runge-Kutta method.

M.C.A. Second Year May 2006
PAPER VII - MULTIMEDIA AND ITS APPLICATIONS

Time: Three hours

Maximum: 100 marks

PART A - (8 x 5 = 40 marks) Answer ALL questions.

1. (a) Describe the various stages of a multimedia project. Or
(b) Describe the role of a multimedia designer and interface designer.
2. (a) Give some of the applications of multi media. Or
(b) Write short notes on creativity.
3. (a) Explain about Macintosh platform. Or
(b) Explain about any three memory devices used in multimedia.
4. (a) Give the features of a good 3D – modeling tool. Or
(b) Write notes on time based authoring tools.
5. (a) Explain about icon based authoring tools. Or
(b) How will you make MIDI audio? Explain
6. (a) Write short notes on computer color models. Or
(b) What are the sound editing operations used in multimedia? Explain.
7. (a) Explain about broadcast video standards. Or
(b) List the Tips for shooting video for multimedia project.
8. (a) Write short notes on internet address. Or
(b) Explain Web servers and Web Browsers

PART B

(5 x 12 = 60 marks)

9. (a) Explain the requirement of multimedia in detail. Or
(b) Explain the following:
 - (i) Connections in multimedia
 - (ii) Communication devices.
10. (a) Explain in detail about input devices used in multimedia. Or

- (b) Explain in detail about animation, video and digital movie tools.
- 11. (a) Explain about the features of authoring tools. Or
(b) Describe about card and page based authoring tools.
- 12. (a) Give all the design suggestions considered while choosing text fonts. Or
(b) Write short notes on :
 - (i) Audio file format
 - (ii) Image file format.
- 13 (a) Explain about various recording formats in detail. Or
(b) Explain the images and sound used for the web

MCA Second Year May 2006
Paper VIII - OPERATING SYSTEM

Time: Three hours

Maximum: 100 marks

PART A

Answer ALL questions.

(8 x 5 = 40 marks)

- 1. (a) Write short note on early operating system. List the differences between Multiprogramming and Time-sharing systems. Or
(b) Explain the architecture of an operating system.
- 2. (a) List out the various process states and briefly explain with a state diagram. Or
(b) What do you mean by processor scheduling? Explain the various levels of scheduling.
- 3. (a) Explain the methods of dead lock prevention and avoidance. Or
(b) Write briefly on fragmentation and swapping.
- 4. (a) Why disk scheduling is necessary? Explain the different seek optimization techniques.
Or
(b) Describe the different mechanisms used to protect a file.
- 5. (a) Explain the design principles of Unix
(b) Write a short note on Unix file system
- 6. (a) Write short notes on Demand Page Memory management. Or
(b) What is segmentation? State its usages.
- 7. (a) Explain the concepts involved in maintaining the file system security. Or
(b) Write short notes on double - buffering.
- 8. (a) List the various merits of treating directories and devices as file in Unix. Or
(b) Write short notes on I/O systems on Unix.

PART B

Answer ALL questions.

(5 x 12 = 60 marks)

9. (a) Explain the various functions of an operating system from a system programmer's view.
- Or
- (b) What is semaphore? Explain the application of semaphore.
10. (a) Compare preemptive and non-preemptive algorithm. Or
- (b) Explain the Banker's algorithm for dead-lock avoidance.
11. (a) Explain any four page replacement algorithms. Or
- (b) State about virtual memory concept.
12. (a) Describe the various disk scheduling algorithms. Or
- (b) Give an overview of the various protection and access control mechanisms implemented in a file system.
13. (a) Discuss the file protection mechanisms incorporated in a Unix file system. Or
- (b) List the calls in Unix for process management and write the function of each.

MCA Second Year MAY 2006

PAPER IX Elective - ARTIFICIAL INTELLIGENCE

Time: Three hours

Maximum: 100 marks

PART A

Answer ALL questions.

(8 x 5 = 40 marks)

1. (a) Define artificial intelligence. Explain how do AI problems differ from normal problems.
- Or
- (b) What is an AI technique? Discuss.
2. (a) Define a problem. Explain the state space representation method of a problem with an example. Or
- (b) Discuss A* algorithm.
3. (a) Discuss mini-max search procedure with examples. Or
- (b) Explain the following: (i) Futility cut off (ii) Horizon effect.

4. (a) Describe the steps involved in translating a wff to clause form. Or
(b) Write short notes on Non-monotonic Reasoning.
5. (a) Give a brief discussion on frames. Or
(b) Describe the components of an Expert system.
6. (a) Explain case grammars Or
(b) Give a brief note on understanding
7. (a) Write a note on procedural representation Or
(b) Describe concept learning.
8. (a) Explain discovery as learning. Or
(b) Discuss learning by analogy.

PART B

(5 x 12 = 60 marks)

9. (a) Discuss in detail the areas of AI. Or
(b) Explain the organization of AI systems.
10. (a) Elaborate the characteristics of a problem. Or
(b) Discuss the following:
 - (i) Production systems
 - (ii) Means ends analysis.
11. (a) Briefly discuss the alpha beta algorithm with suitable examples illustrating the cutoffs clearly.

Or

(b) Give a detailed account on scripts.
12. (a) Write a note on natural understanding language in general. Or
(b) Explain the use of frames and scripts in understanding.
13. (a) Describe Rote learning. Or
(b) Explain learning in GPS.

MCA Second Year MAY 2006

PAPER X Elective - MODERN COMMUNICATION

Time: Three hours

Maximum: 100 marks

PART A

Answer ALL questions.

(8 x 5 = 40 marks)

1. (a) Why we need for modulation? Explain AM. Or
(b) Briefly explain the single - sideband modulation and demodulation.

2. (a) Compare AM with FM. Or
(b) Explain directly modulated FM transmitters. Explain AGC and AFC
3. (a) Explain AGC and AFC Or
(b) Explain single tone and multi tone FM
4. (a) Explain in detail about PCM. Or
(b) Explain in detail about PAM sampling.
5. (a) Explain in detail Flat-topped PAM sampling. Or
(b) Compare the FSK with ASK.
6. (a) Explain in detail about microwave communication. Or
(b) Describe in detail about mobile dispatch system.
7. (a) Discuss about the Losses in Fibers Or
(b) Explain the p-n photo diode detectors
8. (a) Explain the basic principles of television Or
(b) Discuss about the generation of composite receivers.

PART B

Answer ALL questions.

(5 x 12 = 60 marks)

9. (a) Briefly explain the balanced modulator circuit. Or
(b) Draw and explain the block diagram of AM transmitters.
10. (a) Sketch the graphs and explain equivalent frequency deviation and average noise power output for noise in FM receiver. Or
(b) Discuss about the narrow band FM and wide band FM.
11. (a) Explain the pulse transmission system and encoding system. Or
(b) Briefly explain the digital modulation techniques
12. (a) Explain in detail about Satellite Communication system Or
(b) Define orbit and Station keeping. Explain the detail about transmission path in Satellite system.

13. (a) What is the advantage of using a graded index core in a fiber? Explain how energy is lost from fiber at a sharp bend. Or
(b) Briefly explain the block diagram of black and white television receiver.

MCA Third Year MAY 2006
PAPER I DISTRIBUTED DATABASE DESIGN

Time: Three hours

Maximum: 100 marks

PART A

Answer ALL questions.

(8 X 5 = 40 marks)

1. (a) Discuss the network model of database system with example. Or
(b) Define database system. List the advantages of it.
2. (a) Explain why distributed databases are essential. Or
(b) Compare Distributed Databases with centralized databases.
3. (a) Explain with example the distribution transparency for read only applications. Or
(b) Discuss the distribution transparency for UPDATE applications with example.
4. (a) What are the rules. laid for define fragments? Or
(b) What do you mean by distributed database access primitives? Explain.
5. (a) Explain the equivalence transformation J queens Or
(b) Explain the process of using semi-jo programs for join queries with suitable examples.
6. (a) Explain the two-phase commitment protocol Or
(b) What are the properties of transaction? Explain them in brief.
7. (a) Explain the architecture of SDD - 1 in detail Or
(b) Discuss the conflict graph analysis.
8. (a) Write short notes on execute phase I Or
(b) What are the functions of transaction control layer in telnet? .

PART B

Answer ALL questions.

(5 x 12 = 60 marks)

9. (a) Describe the following with example:
(i) Hierarchical model (ii) Relational model. Or
(b) Explain the different operations allowed on relational algebra with suitable examples.

10. (a) Explain the concept of distributed database management system in detail.
(b) Or Discuss the following: (i) Overview of DDB
(ii) Global optimization (iii) Local optimization.
11. (a) What are the types of fragmentation? Explain them with examples. Or
(b) Describe in detail the architectures of DDB with objectives.
12. (a) Discuss the different procedure in the process of transforming global queries into fragment queries with example. Or
(b) Write about the profiles of the result of any four algebraic operations with example.
13. (a) Discuss the following ways of implementing a distributed transaction using the CICS IICS facility.
(i) Function Shipping (ii) Asynchronous transaction processing. Or
(b) Describe the global time layer of Telnet in detail.

MCA Third Year MAY 2006
PAPER II INTERNET AND JAVA PROGRAMMING

Time: Three hours

Maximum: 100 marks

PART A

Answer ALL questions.

(8 x 5 = 40 marks)

1. (a) Discuss TELNET in detail. Or
(b) Describe SMTP in detail.
2. (a) Explain any five text formatting tags in HTML with example. Or
(b) Discuss the < FRAME> tag with example.
3. (a) Discuss inheritance with example. Or
(b) Write an object-oriented program to sort an array of integers in Java.
4. (a) Write short note on file streams. Or
(b) Explain example the life cycle of Applet class
5. (a) Explain any five string methods with example Or
(b) Write short note on persistence storage.

6. (a) Explain any two types of loop structures in JavaScript with example. **Or**
(b) Discuss the function with arguments in JavaScript with example.
7. (a) Explain any two types of variables in PERL **Or**
(b) Write short note on CGI.
8. (a) Explain the different data types used in VB **Or**
(b) Discuss Input Box function in VB script with example.

PART B

(5 x 12 = 60 marks)

9. (a) Define browser. Explain any two types of browser in detail. **Or**
(b) Discuss < TABLE > tag and its various attributes with example.
10. (a) Explain in detail about exception handling in Java. **Or**
(b) Discuss the states and methods of thread with example.
11. (a) Explain data gram and its classes with examples. **Or**
(b) (i) Discuss any three drawing methods in graphics class with example. (6)
(ii) How will you create and display image? Explain with example. (6)
12. (a) Explain any six Java Script event handlers with suitable examples. **Or**
(b) Discuss the various file handling operations of PERL.
13. (a) (i) Explain the procedures used in VB script different types of (6)
(ii) Discuss msg box function in VB script with example. (6) **Or**
(b) Describe the following: (i) Active x control (6) (ii) Multimedia (6)

**MCA Third Year MAY 2006
PAPER III - COMPUTER NETWORKS**

Time: Three hours

Maximwn : 100 marks

PART A

Answer ALL questions.

(8 x 5 = 40 marks)

1. (a) Write short note on wireless network. **Or**
(b) Discuss fiber optics transmission media.
2. (a) Explain ATM switches in briefly. **Or**

- (b) Discuss paging systems in cellular radio.
- 3. (a) Describe point - to - point protocol in briefly. **Or**
(b) Write short note on slotted ALOHA.
- 4. (a) *Discuss* IEEE standard 802.4 token bus **Or**
(b) Describe FDDI in briefly
- 5. (a) Explain shortest - path routing algorithm with example. **Or**
(b) subnets.
- 6. (a) Explain IP protocol with example. **Or**
b) Write short note on IPU6.
- 7. (a) Describe TCP transmission policy. **Or**
(b) Explain network news transfer protocol in detail
- 8. (a) Write short note on DNS **Or**
(b) Discuss URL with example

PART B

Answer ALL questions.

(5 x 12 = 60 marks)

- 9. (a) Explain architectures. In detail network any two **Or**
(b) Discuss in detail narrow band ISDN.
- 10. (a) Explain error detection and correction with example. **Or**
(b) Define bridges. Discuss any two types of bridges in detail.
- 11. (a) Explain network layer design issues in detail. **Or**
(b) Discuss the following in ATM networks.
(i) Connection setup (6) (ii) Quality of services. (6)
- 12. Explain the following elements of transport:
(a) (i) protocols. Addressing (6) (ii) establishing a connection (6). **Or**
(b) Explain system design performance in detail.
- 13. (a) Explain different message mail in detail **Or**
(b) Describe Server side and client side concepts in WWW.

MCA Third Year MAY 2006
Paper IV E-COMMERCE

Time: Three hours

Maximum: 100 marks

PART A

Answer ALL questions.

(8 x 5 =40 marks)

1. (a) Write short notes on Mosaic.
Or
(b) What is domain name? Explain with example
 - 2.(a) What are the various types of networks? Explain.
Or
(b) Explain the history of the Internet.
 - 3.(a) What are various types of Internet access? Explain
Or
(b) What is IP address? Explain.
 - 4.(a) What are the advantages and disadvantages of not having your own web server? .
Or
(b) What is HTTPD? Explain.
 - 5.(a) What are various command-line options? Explain.
Or
(b) What are the disadvantages of HTML?
 6. (a) Explain about paragraph formatting in a HTML document.
Or
(b) What are the HTML special character sequences? Explain. with example.
 7. (a) Explain the method of accessing sound in a web page.
Or
(b) What are hidden controls? Explain.
 8. (a) What are various HTML input tag types?. Explain
Or
(b) Write q note on editing HTML with word processors.
- PART B - (5 x 12 =60 narks)
9. (a) What are the services available on the web? Explain.
Or
(b) What is multimedia? What are its elements?
 10. (a) What are various ways that we can access the web? Explain.
Or
(b) What are web browsers? What are the desirable features of a web browser?
 11. (a) What are various web servers for each computer platform? Explain.
Or
(b) Explain in detail about letting up a web server.
 12. (a) Explain the HTML logical text formatting tags with example.

Or

(b) Explain the HTML list tags with example.

13.(a) Explain in detail about creating a basic form.

Or

(b) Explain in detail about various HTML command editors.

MCA Third Year MAY 2006

Paper V - VISUAL PROGRAMMING CONCEPTS IN VISUAL C++

Time : Three hours

Maximum: 100 marks

PART A

Answer ALL questions.

(8 x 5 = 40 marks)

1. (a) What are the difference between DOS and Windows? **Or**
(b) What is an icon? How to create it?
2. (a) What are the elements of Windows SDK? Explain. **Or**
(b) Explain about message handling.
3. (a) Explain how to create a window. **Or**
(b) Explain about message mapping.
4. (a) Explain about method overloading. **Or**
(b) Explain the dialog box concepts.
5. (a) What are advantages of MFC library? **Or**
(b) What is serialization? Explain.
6. (a) Explain the term 'local input state'. **Or**
(b) Explain about keyboard input.
7. (a) What are the steps to be followed while creating a wizard with *MFC*? **Or**
(b) What is class wizard? Explain.
8. (a) What are the key properties for the edit box control? **Or**
(b) Write Short notes on Frame window messages.

PART B

(5 x 12 = 60 marks)

9. (a) What are windows properties? Explain. **Or**
(b) Explain about event driven programming.

10. (a) Explain in detail about API. Or
(b) Write a SDK program to create a simple window.
11. (a) Explain the MFC class hierarchy. Or
(b) Explain about keyboard message handler.
12. (a) Explain about spin control. Or
(b) What are messages? Explain the various types of menu.
13. (a) Create a simple word processor with the app wizard. Or
(b) Write short notes on (i) Displaying bit maps (ii) Text and fonts.

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