MCA–641	**MCA–01/ PGDCA-01**

M.C.A./P.G.D.C.A. DEGREE/DIPLOMA EXAMINATION – JUNE 2008

First Year/First Semester

COMPUTER FUNDAMENTALS

Time : 3 hours Maximum marks : 75

Answer for 5 marks questions should not exceed 2 pages.

Answer for 10/15 marks questions should not exceed 5 pages.

PART A — (5 × 5 = 25 marks)

Answer any FIVE questions.

1. Convert $(525)_{10}$ into its equivalent Binary, Octal and Hexadecimal.

2. Write down all the laws of Boolean Algebra.

3. Explain the working principles of J-K flip-flop with its circuit.

4. Distinguish among various types of random access memories.

5. Discuss the basic organization of ALU.

6. Discuss the various addressing modes of 8086 microprocessor.

7. Write short notes on Parallel Processing.

PART B — (5 × 10 = 50 marks)

Answer any FIVE questions.

8. Discuss the Karnaugh map method for simplifying Boolean functions.

9. Explain the working principles of a Half Adder and a Half Subtractor.

10. Explain the general structure of I/O Module in detail.

11. Explain various instruction formats in detail.

12. With a neat diagram explain the micro programmed control unit.

13. With a neat diagram discuss the architecture of 68000 Microprocessor.

14. Compare any three common RISC architectures.

MCA–642 **MCA–02**

M.C.A.DEGREE EXAMINATION–JUNE 2008.

First Year/First Semester

INTRODUCTION TO SOFTWARE

Time : 3 hours Maximum marks : 75

Answer for 5 marks questions should not exceed 2 pages.

Answer for 10/15 marks questions should not exceed 5 pages.

PART A — (5 × 5 = 25 marks)

Answer any FIVE questions.

15. What are the types of translators?

16. Describe the functioning of Loader.

17. Write short notes on line editors.

18. Explain the features of unix file system.

19. What is process? Draw process state diagram.

20. Write a shell script to find whether a given number is odd or even.

21. What are the advantages and disadvantages of CASE Tools?

PART B — (5 × 10 = 50 marks)

Answer any FIVE questions.

22. Discuss the various stages of problem solving.

23. What are the major commands of the Vi screen editor? Explain the features of Vi editor.

24. Explain the following :

(a) Spooling

(b) Buffering.

25. What is mutual exclusion? How does semaphores solve mutual exclusion problem?

26. Explain any two parameter passing techniques in detail.

27. Explain the following UNIX commands.

(a) sty (b) who

(c) cal (d) man

(e) kill.

28. What is the purpose of project control? What are the two project control techniques?

MCA–643 **MCA-03/ PGDCA-02**

M.C.A./P.G.D.C.A. DEGREE/DIPLOMA EXAMINATION – JUNE 2008.

First Year/First Semester

DATA STRUCTURES THROUGH C

Time : 3 hours Maximum marks : 60/75

Answer for 5 marks questions should not exceed 2 pages.

Answer for 10/15 marks questions should not exceed 5 pages.

PART A — (4 × 5 = 20)/(5 × 5 = 25)

Candidates with Enrolment Number starting with A4 MCA and C5 MCA have to answer any FOUR from the Questions 1 to 6, all other candidates have to answer any FIVE from questions 1 to 7 in Part A.

29. List the various types of constants available in 'C'. Explain with examples.

30. Explain the syntax and use of do-while loop with an example.

31. What is a Queue? How will you check whether the Queue is full or empty? Discuss.

32. Define Sorting? What are the factors to be considered while choosing a sorting technique?

33. Explain storage classes in 'C' with examples.

34. What is meant by binary tree traversal? Explain any two traversals with suitable examples.

35. State the advantages, disadvantages and applications of linked list.

PART B — (4 × 10 = 40)/(5 × 10 = 50)

Candidates with Enrolment Number starting with A4 MCA and C5 MCA should answer any FOUR from the questions 8 to 13 and all other candidates should answer any FIVE from the questions 8 to 14 in Part B.

36. List out the logical operators and relational operators available in C and explain their use with suitable examples.

37. Describe in detail the various operations performed on a stack with algorithm.

38. Develop an algorithm for Binary Search.

39. What is meant by traversing a graph? Write the algorithm for Depth-first search and explain.

40. What are the standard files that are accessed when a program begins its execution? List out the important file handling functions available in 'C'.

41. With relevant example discuss call by value and call by reference.

42. Explain by giving suitable examples Balanced binary Trees and B-Trees.

MCA–644 **MCA-04/ PGDCA-03**

M.C.A./P.G.D.C.A DEGREE/DIPLOMA EXAMINATION – JUNE 2008.

First Year/First Semester

ELEMENTS OF SYSTEM ANALYSIS AND DESIGN

Time : 3 hours Maximum marks : 75

Answer for 5 marks questions should not exceed
2 pages.

Answer for 10/15 marks questions should not exceed
5 pages.

PART A — (5 × 5 = 25 marks)

Answer any FIVE questions.

43. Explain the need for steering committee and Information System Committee for project review and selection.

44. Discuss in detail any one type of decision table.

45. What are the various methods that are commonly used for input verification and control?

46. Describe briefly the various classification of forms.

47. What is Bench Mark Testing? Explain.

48. Describe in detail the four methods of system conversion.

49. Briefly explain animation, morphing and warping.

PART B — (5 × 10 = 50 marks)

Answer any FIVE questions.

50. Discuss in detail the role of a System Analyst.

51. Discuss in detail form design and various factors to be considered in form design.

52. Describe in detail unit testing and system testing.

53. Explain in detail any three components of Multimedia.

54. Discuss in detail the various input media and devices used for feeding the raw data into the system.

55. What is data dictionary? Describe briefly about the different types of data dictionaries and their functions.

56. Discuss the different types of file organization with suitable examples.

MCA–645 **MCA-05/ PGDCA-04**

M.C.A./P.G.D.C.A. DEGREE/DIPLOMA EXAMINATION – JUNE 2008.

First Year/First Semester

(AY 2004-05 to AY 2007-08)

INTRODUCTION TO DATABASE MANAGEMENT SYSTEMS

Time : 3 hours Maximum marks : 60/75

Answer for 5 marks questions should not exceed 2 pages.

Answer for 10/15 marks questions should not exceed 5 pages.

PART A — (4 × 5 = 20)/(5 × 5 = 25)

Candidates with Enrolment number starting with A4 MCA and C5 MCA should answer any FOUR from Question 1 to 6 and all others should answer any FIVE from question 1 to 7 in Part A.

57. Write the advantages of Database Management Systems.

58. Compare hierarchical and network models with relational model.

59. Explain the features of relational calculus.

60. Provide an architecture for distributed database systems.

61. What are client/server databases? Explain.

62. List the features of Knowledge Databases and explain them.

63. Develop an E-R model for a hospital information system.

PART B — (4 × 10 = 40)/(5 × 10 = 50)

Candidates with Enrolment Numbers starting with A4 BCA and C5 BCA should answer any FOUR from Question No 8 to 13 and all others should answer any FIVE from Question No 8 to 14 in Part B.

64. Explain the overall system architecture of database management systems.

65. List the file organization techniques and explain them.

66. Define first normal form, second normal form, third normal form and Boyce/Codd normal form. Explain them.

67. Design a database using E-R model for implementing an enterprise wide information system for the Times of India Group.

68. Define abstract data types, object identity and Inheritance. How are they implemented in object oriented Databases?

69. Explain the CREATE TABLE, INSERT, DELETE, SELECT and UPDATE commands of SQL with suitable examples.

70. What are deductive databases? Explain the features of deductive databases.

MCA–646 **MCA-06/ PGDCA-05**

M.C.A./P.G.D.C.A. DEGREE/DIPLOMA EXAMINATION – JUNE 2008.

First Year/Second Semester

INTRODUCTION TO COMPUTER ORGANISATION

Time : 3 hours Maximum marks : 75

Answer for 5 marks questions should not exceed 2 pages.

Answer for 10/15 marks questions should not exceed 5 pages.

PART A — (5 × 5 = 25 marks)

Answer any FIVE questions.

71. Convert the following decimal numbers to binary

(a) 32

(b) 89

(c) 298.

72. Draw a Karnaugh Map for five variables.

73. Write short notes on Direct Memory Access.

74. Define control unit and write its functions.

75. What is Micro-programmed control unit?

76. List out various components of 8086 microprocessor.

77. Differentiate between COM and EXE programs.

PART B — (5 × 10 = 50 marks)

Answer any FIVE questions.

78. Explain Multiplexer and Decoder detail.

79. Explain the following :

(a) Optical Memories

(b) Charge – Coupled Devices

(c) Magnetic Bubble Memories.

80. Explain the basic structure of the CPU with a neat diagram.

81. Discuss the basic organization of ALU.

82. Define microinstruction and write its types and formats.

83. Discuss the brief outline of 68000 microprocessor.

84. Write an assembly language program to find largest among 10 numbers.

MCA–647 **MCA-07/ PGDCA-06**

M.C.A./P.G.D.C.A. DEGREE/DIPLOMA EXAMINATION – JUNE 2008.

First Year/Second Semester

INTRODUCTION TO SOFTWARE ENGINEERING

Time : 3 hours Maximum marks : 60/75

Answer for 5 marks questions should not exceed 2 pages.

Answer for 10/15 marks questions should not exceed 5 pages.

PART A — (4 × 5 = 20)/(5 × 5 =25)

Candidates with enrolment number starting with A4 MCA and C5 MCA should answer any FOUR from Question 1 to 6 and all others should answer any FIVE from question 1 to 7 in Part A.

85. Write the characteristics of software. Compare it with hardware.

86. What are Software myths? Explain them.

87. List the levels of CMM and explain them.

88. How will you estimate and manage software risks?

89. What are software metrics? Explain their need and computation techniques.

90. Explain the object oriented analysis techniques.

91. List the features of CASE tools and explain them.

PART B — (4 × 10 = 40)/(5 × 10 = 50)

Candidates with Enrolment Numbers starting with A4 BCA and C5 BCA should answer any FOUR from Question No 8 to 13 and all others should answer any FIVE from Question No 8 to 14 in Part B.

92. Explain the waterfall model and prototype model.

93. How will you recruit and manage people for software projects?

94. List the steps involved in Software Configuration Management. Explain them.

95. How will you maintain software quality through reviews?

96. What are cohesion and coupling? How will you use these concepts in design?

97. Explain the software testing techniques.

98. What is ISO? Explain the ISO standards for software quality.

MCA–648 **MCA-08**

M.C.A. DEGREE EXAMINATION – JUNE 2008.

First Year/Second Semester

COMPUTER ORIENTED NUMERICAL METHODS

Time : 3 hours Maximum marks : 75

Answer for 5 marks questions should not exceed
2 pages.

Answer for 10/15 marks questions should not exceed
5 pages.

PART A — (5 × 5 = 25 marks)

Answer any FIVE questions.

99. Explain Secant method for solving non-linear equations.

100. Derive the iterative formula to compute the square root of a positive number.

101. Compare direct and iterative methods to solve the system of Linear Equations.

102. Solve by Cramer's rule :

$$\begin{aligned} x + 4y &= 5 \\ 2x - y &= 1 \end{aligned}.$$

103. What is inverse interpolation? Explain.

104. Explain the principle of least squares.

105. Write the formula of R-K methods upto Fourth Order.

PART B — (5 × 10 = 50 marks)

Answer any FIVE questions.

106. Find a root of the equation $x \log_{10} x = 1.2$ by Newton's method.

107. Find a root of the equation, by bisection method :

$$3x = \cos x + 1 .$$

108. Solve the system of equations.

$$\begin{aligned} 10x + y + z &= 12 \\ x + 10y + z &= 12 \\ x + y + 10z &= 12 \end{aligned}$$, by Gauss Elimination Method.

109. Solve by Gauss-Seidel method :

$$10x - 5y - 2z = 3$$
$$4x - 10y + 3z = -3$$
$$x + 6y + 10z = -3.$$

110. Using Lagrangels formula, fit a polynomial to the following data.

x	-1	0	2	3
y	-8	3	1	12

Hence find *y (1)*.

111. Evaluate $\int_0^6 \frac{dx}{1+x^2}$ by Simpson's 1/3 rule and $3/8$ rule.

112. Solve $\frac{dy}{dx} = \frac{y^2 - x^2}{y^2 + x^2}$ for $x = 0.2, 0.4$ given $y(0) = 1$, using R-K method of fourth order.

MCA–649 **MCA-09/ PGDCA-07**

M.C.A./P.G.D.C.A. DEGREE/DIPLOMA EXAMINATION – JUNE 2008.

First Year/Second Semester

C++ AND OBJECT ORIENTED PROGRAMMING

Time : 3 hours Maximum marks : 60/75

Answer for 5 marks questions should not exceed 2 pages.

Answer for 10/15 marks questions should not exceed 5 pages.

PART A — (4 × 5 = 20)/(5 × 5 = 25)

113. Why is C++ called as object oriented programming language?

114. Explain function overloading with an example.

115. What are 'static' variables? Write their scope rules.

116. What is a friend function? Explain it.

117. Define constructor overloading. Explain it.

118. Explain virtual base class with a suitable example.

119. Distinguish between function templates and class templates.

PART B — (4 × 10 = 40)/(5 × 10 = 50)

120. Explain the control structures provided in C++.

121. Define operator overloading. Explain the method of overloading + and * for addition and multiplication of complex numbers.

122. Explain the various forms of Inheritance.

123. Write a program in C++ that implements a stack using abstract data types.

124. Write a program in C++ to sort an array of integers.

125. Explain the file handling techniques used in C++.

126. What is exception handling? Explain the exception handling facility provided in C++.

MCA–650	**MCA-10/ PGDCA-08**

M.C.A./P.G.D.C.A. DEGREE/DIPLOMA EXAMINATION – JUNE 2008.

First Year/Second Semester

THEORY OF COMPUTER SCIENCE

Time : 3 hours Maximum marks : 75

Answer for 5 marks questions should not exceed 2 pages.

Answer for 10/15 marks questions should not exceed 5 pages.

PART A — (5 × 5 = 25 marks)

Answer any FIVE questions.

127. Define equivalence relation. Give examples.

128. If $f(x) = x + 2,\ g(x) = x - 2$ for $x \in \boldsymbol{R}$ find $f \circ g,\ g \circ f,\ f \circ f$ and $g \circ g$.

129. Construct truth table for $(P \vee Q) \vee 7P$.

130. Explain conjunctive and disjunctive normal forms.

131. What are isomorphic graphs? Explain with examples.

132. Prove that sum of degrees of all vertices of a graph is equal to twice the number of edges in the graph.

133. Explain matrix representation of graphs with examples.

PART B — (5 × 10 = 50 marks)

Answer any FIVE questions.

134. Let $X = \{1, 2, 3, 4\}$ and

$R = \{(x, y) / x > y\}$ be a relation on X.

Determine properties of R and also write the relation matrix.

135. Prove that transitive closure $R+$ of a relation R in a finite set X is transitive.

136. Construct truth table for the formula $(Q \wedge (P \to Q)) \to P$.

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

138. Construct a turing machine $T = \{A, Q, X, P\}$ in which $A = \{a, b, B\}$ with states $Q = \{q_i (0 \le i \le n)\}$.

139. Prove that in a simple digraph $G = (V, E)$ every node lies in exactly one string component.

140. Show that in a complete binary tree the total number of edges is $(2n - 1)$ where 'n' is number of terminal nodes.

MCA–651 **MCA-11**

M.C.A. DEGREE EXAMINATION – JUNE 2008.

Second Year/Third Semester

COMPUTER GRAPHICS

Time : 3 hours Maximum marks : 75

Answer for 5 marks questions should not exceed 2 pages.

Answer for 10/15 marks questions should not exceed 5 pages.

PART A — (5 × 5 = 25 marks)

Answer any FIVE questions.

141. Describe the following :
    (a) Mouse
    (b) Joystick.
142. What are the advantages of raster scan systems?
143. Describe windows and view ports.
144. Write short notes on Point clipping.
145. Explain view volumes and projections in detail.
146. Explain Depth Compression in detail.
147. Write short notes on command languages.

PART B — (5 × 10 = 50 marks)

Answer any FIVE questions.

148. Explain major components of CRT with a neat diagram.
149. Explain Bresenham's line drawing algorithm with an example.
150. Discuss various Hard-Copy output devices in detail.
151. Explain the various 3D Transformation in detail.
152. Explain Sutherland-Hodaman Polygon clipping algorithm in detail.
153. Explain view volumes and projections in detail.
154. Present a tutorial on User Interface Design.

MCA–652 **MCA-12**

M.C.A. DEGREE EXAMINATION – JUNE 2008.

Second Year/Third Semester

DESIGN AND ANALYSIS OF ALGORITHMS

Time : 3 hours Maximum marks : 60/75

Answer for 5 marks questions should not exceed 2 pages.

Answer for 10/15 marks questions should not exceed 5 pages.

PART A — (4 × 5 = 20)/(5 × 5 =25)

Candidates with enrolment number starting with A4MCA and C5MCA should answer any FOUR from Question 1 to 6 and all others should answer any FIVE from question 1 to 7 in Part A.

155. How will you analyse an algorithm?

156. Write an algorithm for binary search and analyse its complexity.

157. Define recursion. Explain it with an example.

158. State the bubble sort algorithm and explain it.

159. What is divide and conquer technique? Explain it.

160. How will you traverse a tree?

161. State and explain the Dijkstra's algorithm for graphs.

PART B — (4 × 10 = 40)/(5 × 10 = 50)

Candidates with Enrolment Numbers starting with A4BCA and C5BCA should answer any FOUR from Question No 8 to 13 and all others should answer any FIVE from Question No 8 to 14 in Part B.

162. What is meant by induction? Using induction prove that $1^2 + 2^2 + ... + n^2 = \frac{n(n+1)\ (n+2)}{6}$.

163. State and explain the merge/sort algorithm.

164. Explain the quick sort algorithm and its complexity.

165. Explain the graph representation techniques.

166. What is hashing? Explain an hashing technique.

167. State and explain the Kruskal's Minimum Spanning Tree algorithm.

168. Explain the Depth First technique by solving the Travelling Salesman Problem.

MCA–653 MCA-13

M.C.A. DEGREE EXAMINATION – JUNE 2008.

Second Year/Third Semester

ACCOUNTING AND FINANCE ON COMPUTERS

Time : 3 hours Maximum marks : 75

Answer for 5 marks questions should not exceed 2 pages.

Answer for 10/15 marks questions should not exceed 5 pages.

PART A — (5 × 5 = 25 marks)

Answer any FIVE questions

169. State the rules of debiting and crediting.

170. How is cost volume profit analysis useful to the management?

171. Explain the significance of capital gearing ratio.

172. How does cash budget help the management?

173. The Balance Sheet of Alarm Ltd at the end of 1998 and 1999 are given below. Your are required to prepare a Schedule of changes in Working Capital.

Liabilities	1998 Rs.	1999 Rs.	Assets	1998 Rs.	1999 Rs.
Shares Capital	1,00,000	1,50,000	Land	1,00,000	1,00,000
Share Premium	–	50,000	Plant at cost	1,10,000	1,00,000
General Reserve	50,000	60,000	Debtors	50,000	70,000
Creditors	2,10,000	80,000	Stock	40,000	50,000
			Cash	60,000	20,000
	3,60,000	3,40,000		3,60,000	3,40,000

174. From the following particulars calculate wages earned by workers A and B respectively under Taylors system.

Standard time allowed : 10 units per hour

Normal wage rate : Rs 1 per hour

Differential rates to be applied :

75 per cent of piece rate when below standard efficiency

125 per cent of piece rate when at or above standard production on a day of 8 hours

A - 60 units B - 100 units.

175. Find out the quantity of Raw material to be purchased from the following details.

Opening stock of Raw materials 15,000 kgs

Material expected to be consumed 20,000 kgs

Closing stock of Raw material required 10,000 kgs.

PART B — (5 × 10 = 50 marks)

Answer any FIVE questions.

176. Discuss the various types of accounts.

177. How are the working capital needs of a firm determined?

178. Define cost accounting. What are its objectives?

179. K. Ltd Produces and sells a product for which total capacity of 2000 units exists. The following expenses are for the production of 1,000 units of the product which is sold at Rs. 130 per unit.

	Per unit (Rs.)
Direct materials	20
Direct wages	30
Administration overheads (constant)	20
Selling expenses (50% fixed)	10
Distribution expenses (25% fixed)	20
	100

You are required to prepare a flexible budget for the production and sale of 1,200 units and 2,000 units showing clearly the marginal (variable) cost and total cost at each level.

180. The following are the Income statement of J.Ltd. For the year ending 31st December 1999 and 1998. You are required to prepare a comparative Income statement for the two years.

	31.12.1998 Rs.	31.12.1999 Rs.
Net Sales	10,00,000	12,00,000

Cost of goods sold	5,50,000	6,05,000
Operating expenses		
Administration	80,000	1,00,000
Selling	60,000	80,000
Non-operating expenses		
Interest	40,000	50,000
Income tax	50,000	80,000

181. From the following Trail Balance prepare Trading, Profit and Loss account and Balance Sheet for the Year ending 31st March 2001.

Trial Balance as on 31st March 2001

Particulars	Debit	Credit
	Rs.	Rs.
Shares Capital		2,00,000
Furniture	1,00,000	
Sundry debtors	30,000	
Sundry Creditors		30,000
Cash in hand	10,000	
	Rs.	Rs.
Purchases	50,000	
Sales		40,000
Purchases returns		2,000
Wages	7,000	
Telephone bill	4,000	
Carriage outwards	3,000	
Selling expenses	6,000	
General expenses	8,000	
Opening stock	40,000	
Discount allowed	2,000	
Administrative expenses	5,000	
Postage and stationary	2,000	
Discount received		3,000
Administrative expenses	8,000	
	2,75,000	2,75,000

The following adjustments are to be made:

(a) Depreciate Furniture by 5%

(b) Outstanding Rent is Rs. 200

(c) Insurace premium paid up to 30th June 2001

(d) Stock in hand as on 31st December is Rs. 30,000

(e) Provide Reserve for bad debts 10%.

182. Ms. Asoka Ltd. has submitted the following Balance Sheet for the year ending 31st March 2007

Liabilities	Rs.	Assets	Rs.
Equity Capital	1,50,000	Fixed Assets	1,62,000
Revenue reserves	30,000	Current Assets :	
8% Debentures	20,000	Stock	22,000
Sundry Creditors	49,000	Debtors	51,000
		Bills Receivable	2,000
		Bank	12,000
	2,49,000		2,49,000

Find the Current ratio and Liquid ratio and comment on the financial condition of the company.

MCA–654 MCA-14

M.C.A. DEGREE EXAMINATION – JUNE 2008.

Second Year/Third Semester

COMMUNICATION SKILLS

Time : 3 hours Maximum marks : 75

Answer for 5 marks questions should not exceed 2 pages.

Answer for 10/15 marks questions should not exceed 5 pages.

PART A — (5 × 5 = 25 marks)

Answer any FIVE questions.

183. How does language act as a barrier to effective communication?

184. Upward communication is very useful but very difficult. Suggest some methods of increasing its effectiveness.

185. "Communication need not be made in words alone"– Comment.

186. Mention the advantages of videoconferencing.

187. How must you behave in a group discussion?

188. Prepare your Curriculum vitae giving dummy name and address.

189. Assuming you are the Chairman of a company situated in Chennai, draft an agenda to consider the possibilities of opening BPO in other states.

PART B — (5 × 10 = 50 marks)

Answer any FIVE questions.

190. Discuss the changes brought about in the field of communication by the newly introduced electronic devices.

191. How must an interview be conducted for a candidate who is to be selected for the post of system analyst?

192. Draft a report as Secretary to the Board of Directors about the need for an immediate advertising campaign to boost the sales of your company.

193. Write a letter of appointment to a candidate mentioning details of the pay scale as well as other terms and conditions of service.

194. Prepare a memo to a staff for taking disciplinary action against him for taking leave often.

195. You have been asked to declare open a new computer centre opened in your college. Draft a suitable speech for that occasion.

196. Prepare a presentation to students who have completed their degree persuading them to apply for computer courses offered by TNOU.

MCA–655 MCA-15

M.C.A. DEGREE EXAMINATION – JUNE 2008.

Second Year/Third Semester

COMPUTER NETWORKS

Time : 3 hours Maximum marks : 75

Answer for 5 marks questions should not exceed 2 pages.

Answer for 10/15 marks questions should not exceed 5 pages.

PART A — (5 × 5 = 25 marks)

Answer any FIVE questions.

197. Define signal to noise ratio. Then discuss the maximum data rate of a noisy channel as stated by Shannon.

198. Distinguish between the terms unicasting, broadcasting, and multicasting.

199. With relevant examples discuss connection oriented and connectionless services.

200. Distinguish between adaptive and non adaptive routing algorithms. Give relevant examples.

201. Distinguish between circuit switching and packet switching.

202. Explain the principle of working of stop and wait protocol.

203. What is a router? Which layer device is a router? Discuss.

PART B — (5 × 10 = 50 marks)

Answer any FIVE questions.

204. Diagrammatically illustrate and discuss the ISO OSI model.

205. With relevant diagrams explain the working of an Optical Transmission System. Also discuss the different types of optical fibres.

206. Explain the working of a Token Bus. Give diagrammatic illustration.

207. Explain the working of ALOHA, SLOTTED ALOHA, and CSMA protocols.

208. With an example discuss shortest path routing algorithm.

209. Tabulate the states in the TCP connection management FSM and discuss the same.

210. Diagrammatically illustrate and discuss the ATM architecture.

MCA–656 **MCA-16**

M.C.A. DEGREE EXAMINATION – JUNE 2008.

Second Year/Fourth Semester

OPERATIONS RESEARCH

Time : 3 hours Maximum marks : 75

Answer for 5 marks questions should not exceed 2 pages.

Answer for 10/15 marks questions should not exceed 5 pages.

PART A — (5 × 5 = 25 marks)

Answer any FIVE questions.

211. Explain nature of operations research and it's limitations.

212. Solve the L.P.P by graphical method :

Max $Z = 3x_1 + 4x_2$

Subject to $4x_1 + 2x_2 \leq 80$

$2x_1 + 5x_2 \leq 18$

$x_1, x_2 \geq 0$

213. Write the standard form of L.P.P.

214. Write the mathematical formulation of Transportation problem.

215. Explain the advantages and disadvantages of maintaining inventory.

216. Explain the characteristics of Queueing problem.

217. Write the advantages and limitations of simulation.

PART B — (5 × 10 = 50 marks)

Answer any FIVE questions.

218. Solve using simplex method :

Max : $Z = 5x_1 + 3x_2$

Subject to $x_1 + x_2 \leq 2$

$5x_1 + 2x_2 \leq 10$

$3x_1 + 8x_2 \leq 12$

$(x_1, x_2 \geq 0)$

219. Write dual of the L.P.P and solve :

Max $Z = 4x_1 + 2x_2$

Subject to $x_1 + x_2 \geq 3$

$x_1 - x_2 \geq 2$

$(x_1, x_2 \geq 0)$.

220. Solve the transportation problem to minimise the total cost. Find optimum solution.

					Supply
	7	9	3	2	16
	4	4	3	5	14
	6	4	5	8	20
Demand	11	9	22	8	

221. Solve the travelling salesman problem.

	A	B	C	D	E
A	–	3	6	2	3
B	3	–	5	2	3
C	6	5	–	6	4
D	2	2	6	–	6
E	3	3	4	6	–

222. A Company uses 50,000 unit/year each costing Rs. 1.20. Order cost is Rs. 45 and inventory carrying costs are 15% of annual average inventory value

(a) Find EOQ

(b) If the company operates 250 days a year, the procurement time is 10 days and safety stock is 500 units, find re-order level, maximum and minimum inventory.

223. In a railway marshalling yard, goods trains arrive at a rate of 30 trains/day. Assuming inter arrival time follows an exponential distribution and the service time distribution is exponential with an average 36 minutes. calculate

(a) Mean queue size

(b) The probability that queue size exceeds 10.

224. Solve the following game :

$$\begin{pmatrix} 1 & 7 & 3 & 4 \\ 5 & 6 & 4 & 5 \\ 7 & 2 & 0 & 3 \end{pmatrix}.$$

MCA–657 MCA-17

M.C.A. DEGREE EXAMINATION – JUNE 2008.

Second Year/Fourth Semester

OPERATING SYSTEMS

Time : 3 hours Maximum marks : 75

Answer for 5 marks questions should not exceed 2 pages.

Answer for 10/15 marks questions should not exceed 5 pages.

PART A — (5 × 5 = 25 marks)

Answer any FIVE questions.

225. Discuss the various services provided by the operating system.

226. Explain Real Time operating system.

227. Diagrammatically illustrate and discuss the states a process can be in.

228. What is Virtual memory? Discuss.

229. Distinguish between contiguous and non contiguous memory allocation.

230. What is compaction? Justify the need for the same.

231. Explain Shortest Seek Time First disk scheduling algorithm.

PART B — (5 × 10 = 50 marks)

Answer any FIVE questions.

232. Discuss the following types of Operating Systems :

(a) Time Sharing Systems. (5)

(b) Distributed Operating systems. (5)

233. Distinguish between Preemptive and Non-Preemptive scheduling. Give relevant example for each and discuss the same.

234. What is deadlock? Discuss the four conditions for deadlock. Give an example for deadlock.

235. Diagrammatically illustrate and discuss segmentation.

236. Discuss the following page replacement algorithms.

(a) LRU replacement (3)

(b) FIFO replacement (3)

(c) Optimal replacement. (4)

237. With a neat sketch discuss the structure of the UNIX operating system.

238. List and discuss the major activities of an operating system in regard to file management?

MCA–658 **MCA-18**

M.C.A. DEGREE EXAMINATION – JUNE 2008.

Second Year/Fourth Semester

OBJECT ORIENTED ANALYSIS AND DESIGN

Time : 3 hours Maximum marks : 75

Answer for 5 marks questions should not exceed 2 pages.

Answer for 10/15 marks questions should not exceed 5 pages.

PART A — (5 × 5 = 25 marks)

Answer any FIVE questions.

239. How object oriented analysis is different form object oriented design? Discuss.

240. With an example discuss generalization and specialization.

241. Use-Cases are better that flow chart in understanding the user requirements why? Discuss.

242. With a relevant example discuss Aggregation.

243. Differentiate between static and dynamic behaviour.

244. With a relevant example discuss Multiple Inheritance.

245. What are the uses of an activity diagram? Give example.

PART B — (5 × 10 = 50 marks)

Answer any FIVE questions.

246. With relevant examples describe how relationship among objects are implemented.

247. Explain the macro development process as discussed by Booch.

248. With a relevant example discuss Noun-Phrase approach for classification.

249. Class diagrams are static where as behaviour diagrams are dynamic. With relevant examples justify the above statement.

250. Consider the following use cases that may play a role in a Library Management System.

(a) Borrow Book

(b) Return Book

Model Sequence diagrams for the above two use cases.

251. Give examples of metrics that are mainly appropriate for object oriented systems and discuss the same.

252. Present a tutorial on Unified Modeling Language.

MCA–659 **MCA-19**

M.C.A. DEGREE EXAMINATION – JUNE 2008.

Fourth Semester

INTERNET PROGRAMMING

Time : 3 hours Maximum marks : 60/75

Answer for 5 marks questions should not exceed 2 pages.

Answer for 10/15 marks questions should not exceed 5 pages.

PART A — (4 × 5 = 20)/(5 × 5 = 25)

Candidates with enrolment number starting with A4MCA and C5MCA should answer any FOUR from the questions 1 to 6 another should answer any FIVE from an questions 1 to 7 in Part A.

253. Distinguish between LAN and WAN.

254. Explain how does the internet work.

255. What are the tags used for styling text?

256. Give the commands used to insert the VB script into HTML document.

257. What do you mean by Rollover image and how do you create one?

258. What is the purpose of 'final' keyword?

259. What is meant by package? How will you create a package in Java?

PART B — (4 × 10 = 40)/(5 × 10 = 50)

Candidates with Enrolment number starting with A4MCA and C5MCA should answer any FOUR from the questions 8 to 13 and should answer any FIVE from the questions 8 to 14 in Part B.

260. Explain the OSI Reference model in detail.

261. Explain Internet Protocol and Transmission Control Protocol in detail.

262. Discuss the HTML tags that are used for creating a web page and explain them.

263. List any five String objects in Java Script and explain them with examples.

264. Explain properties and methods of the ERR object in VB Script.

265. What is meant by interface? Explain it with an example in Java.

266. What are the commands used to add graphics to web pages?

MCA–660 MCA-20

M.C.A. DEGREE EXAMINATION – JUNE 2008.

Second Year/Fourth Semester

VISUAL PROGRAMMING

Time : 3 hours Maximum marks : 75

Answer for 5 marks questions should not exceed 2 pages.

Answer for 10/15 marks questions should not exceed 5 pages.

PART A — (5 × 5 = 25 marks)

Answer any FIVE questions.

267. Is ReDim an executable statement or a non-executable statement? Where can it appear in an application? Discuss with an example.

268. What are Message Queues? Discuss.

269. State the purpose of ActiveX control. Give example.

270. What are the contents of DLL files? Discuss.

271. List and discuss the object data types in VB.

272. Can multiple views be provided for a Single Document Interface (SDI) in Visual C++? Discuss.

273. List and discuss the two Virtual Functions in the CDialog class in VC++.

PART B — (5 × 10 = 50 marks)

Answer any FIVE questions.

274. With relevant examples discuss the different library functions in VB.

275. With relevant examples discuss the following control structures in VB.

(a) If / Then Selection Structure

(b) If / Then / Else Selection Structure.

276. With relevant example discuss the following components in Visual Basic :

(a) Command Button

(b) Image Control

(c) Message Box

(d) Text Box.

277. Discuss the features of Crystal Reports and Data Reports.

278. What is Exception Handling? How is it implemented in Visual Basic? Give examples.

279. Highlight the features of Visual Data Manager. Give relevant example to illustrate the same.

280. What is a Single Document Interface (SDI)? List and discuss the steps involved in creating a SDI in Visual C++.

MCA–661 **MCA-21**

M.C.A. DEGREE EXAMINATION – JUNE 2008.

Third Year/Fifth Semester

RELATIONAL DATABASE MANAGEMENT SYSTEMS

Time : 3 hours Maximum marks : 75

Answer for 5 marks questions should not exceed 2 pages.

Answer for 10/15 marks questions should not exceed 5 pages.

PART A — (5 × 5 = 25 marks)

Answer any FIVE questions.

281. Discuss about the Objectives of Database Management System.

282. Explain the different kinds of Interfaces that are provided by DBMS.

283. What are the different types of Database? Explain.

284. Briefly explain the multithreaded server.

285. Discuss about the elements of SQL.

286. What is the use of Exists Operator? Explain it with example.

287. List out the requirements of UNION operator.

PART B — (5 × 10 = 50 marks)

Answer any FIVE questions.

288. Define Normalization. Describe the different levels of normalization with suitable example.

289. Briefly discuss about the types of relational constraints.

290. Explain in detail about the benefits of Oracle.

291. Explain DDL command in detail.

292. Define Join Explain the different kinds of joins with example.

293. Briefly discuss about clusters.

294. Explain in detail about Table Handling.

MCA–662 **MCA-22**

M.C.A. DEGREE EXAMINATION – JUNE 2008.

Third Year/Fifth Semester

CLIENT SERVER TECHNOLOGY

Time : 3 hours Maximum marks : 75

Answer for 5 marks questions should not exceed 2 pages.

Answer for 10/15 marks questions should not exceed 5 pages.

PART A — (5 × 5 = 25 marks)

Answer any FIVE questions.

295. What is client/server computing? Explain.

296. Write the Pros and Cons of client/server Architecture.

297. What does a client need from an Operating System?

298. Write short notes on Windows NT workstation.

299. What are the three main components of system Application Architecture?

300. How to support the IPC tool for improving the performance of your system in a variety of Complex Processing situations?

301. Diagrammatically represent the Ellipse architecture.

PART B — (5 × 10 = 50 marks)

Answer any FIVE questions.

302. What are the characteristics of client/server Architecture? Explain.

303. Diagrammatically illustrate and discuss the working of Remote Procedure call.

304. Write the CORBA ORB Architecture in detail.

305. What is Network Operating System? List out the functions with example.

306. With a neat sketch list, discuss and functions performed by the various layers of the ISO-OSI Reference Model.

307. Diagrammatically illustrate and discuss the architecture of application development Work bench.

308. Discuss about client/server development tools.

MCA–663 **MCA-23**

M.C.A. DEGREE EXAMINATION – JUNE 2008.

Third Year/Fifth Semester

MULTIMEDIA SYSTEMS

Time : 3 hours Maximum marks : 75

Answer for 5 marks questions should not exceed 2 pages.

Answer for 10/15 marks questions should not exceed 5 pages.

PART A — (5 × 5 = 25 marks)

Answer any FIVE questions.

309. Explain where to use multimedia.

310. Write short note on image-editing tools.

311. Explain about hypertext and text.

312. Explain various types of audio file formats.

313. Discuss briefly about video compression.

314. Write short notes on RAID.

315. Define communication and communication technologies.

PART B — (5 × 10 = 50 marks)

Answer any FIVE questions.

316. Discuss about various stages in multimedia projects.

317. Explain the features of authoring tools.

318. Discuss about the role of text in multimedia.

319. What are the major type of compression and explain any one.

320. Explain object oriented multimedia.

321. Explain optical media used in multimedia.

322. Write the role of multimedia in education.

MCA–664 **MCA-24**

M.C.A. DEGREE EXAMINATION – JUNE 2008.

Third Year/Fifth Semester

DISTRIBUTED COMPUTING

Time : 3 hours Maximum marks : 75

Answer for 5 marks questions should not exceed 2 pages.

Answer for 10/15 marks questions should not exceed 5 pages.

PART A — (5 × 5 = 25 marks)

Answer any FIVE questions.

323. Diagrammatically illustrate and discuss the architecture of a distributed system.

324. Explain topology in distributed environment.

325. Write short note on NOS.

326. Explain distributed deadlock prevention.

327. Write short note on fragmentation of data in distributed environment.

328. Explain RPC.

329. Discuss switched multiprocessor.

PART B — (5 × 10 = 50 marks)

Answer any FIVE questions.

330. Explain design issues in distributed operating system.

331. Explain the various election algorithms.

332. Discuss about blocking and non blocking-primitives.

333. Explain distributed query processing.

334. Discuss about design issues distributed file system.

335. Discuss about advantages of distributed system.

336. List and discuss the four condition for deadlock. Give relevant example.

MCA–665 MCA-25

M.C.A. DEGREE EXAMINATION – JUNE 2008.

Third Year

NETWORK PROGRAMMING

Time : 3 hours Maximum marks : 75

Answer for 5 marks questions should not exceed 2 pages.

Answer for 10/15 marks questions should not exceed 5 pages.

PART A — (5 × 5 = 25 marks)

Answer any FIVE questions.

337. Write short notes on active scripting.

338. Briefly discuss about ActiveX controls.

339. Explain document-view architecture in MFC.

340. What is an URL? Explain the same with an example.

341. List and discuss basic services of ActiveX hyper links.

342. Discuss about ISAPI.

343. Explain two-tier IIS application.

PART B — (5 × 10 = 50 marks)

Answer any FIVE questions.

344. Explain stand alone scripts with example.

345. Discuss about ActiveX program development.

346. Explain any five intrinsic controls.

347. Discuss about URL DOWN LOAD TO FILE function.

348. Explain CHTML stream.

349. Discuss how to connect web items with example. When designing IIS application with VB?

350. List and discuss the components of DHTML.
