Reg. No. : ....

D 1290　　　　　　Q.P. Code : [95 DMCA 03]

(For the candidates admitted from 1995 to 1997)

M.C.A. DEGREE EXAMINATION, ~~DEC 2010~~

First Year

COMPUTER ORIENTED STATISTICAL AND NUMERICAL METHODS

Time : Three hours　　　　　　Maximum : 100 marks

Answer FIVE questions choose ONE from each Unit.

Use of Statistical table is permitted.

UNIT I

1. (a) Obtain the mean, median and mode of the following : (15)

Marks :	10–25	25–40	40–55	55–70	70–85	85–100
Frequency :	6	210	44	26	3	1

(b) Two regression lines are $4x - 5y + 33 = 0$ and $20x - 9y = 107$

    (i) find the means of x and y

    (ii) the value of r.   (5)

2. (a) Calculate Karl Pearson's coefficient of correlation for the following data :   (10)

$x:$ 65 66 67 67 68 69 70 72

$y:$ 67 68 65 68 72 72 69 71

(b) Fit a straight line to the following data : (10)

$x:$ 1 2 3 4 6 8

$y:$ 2.4 3 3.6 4 5 6

UNIT II

3. (a) In a bolt factory machines A, B, C manufacture respectively 25, 35 and 40 percent of the total of their output 5, 4 and 2 percent are defective bolts. A bolt is drawn at random from the produce and is found to be defective. What is the probability that it was manufactured by machines A?   (10)

(b) A discrete random variable X has the following probability distribution :   (10)

$x:$	0	1	2	3	4	5	6	7	8
$P(X = x):$	a	$3a$	$5a$	$7a$	$9a$	$11a$	$13a$	$15a$	$17a$

    (i) Find the value of a.

    (ii) Find $P(X < 3)$, $P(0 < X < 3)$, $P(X \geq 3)$.

4. (a) Fit a Poisson distribution to the following :   (10)

$x:$ 0 1 2 3 4

$f:$ 43 38 22 9 1

(b) The mean weight of 500 students is 151 lb and the standard deviation is 15 lb. Assuming that the weights are normally distributed, find how many students weight between 120 and 155 lb.   (10)

UNIT III

5. (a) A manufacturer claims that only 4% of his products supplied by him are defective. A random sample of 600 products contained 36 defectives. Test the claim of the manufacturer at 5% level of significance.(10)

(b) From the following two sample values, test if the variances are significantly different at 5% level of significance. (10)

Sample 1 : 17 27 18 25 27 29 27 23 17

Sample 2 : 16 16 20 16 20 17 15 21

6. (a) Test whether the sample having the values 63, 63, 64, 55, 66, 69, 70, 70, 71 has been chosen from a population with mean of 65 at 5% level of significance? (10)

(b) The theory predicts the proportion of beans in the four groups A, B, C, D should be in the ratio 9 : 3 : 3 : 1. In an experiment with 1600 beans the numbers in the four groups were 882, 313, 287 and 118. Does the experimental result support the theory? Test at 5% level of significance. (10)

UNIT IV

7. (a) Find the real root of $3x - \cos x - 1 = 0$ by Newton's – Raphson method. (10)

4   **D 1290**

(b) Solve the following system of equation using Gauss-Elimination method (10)

$$3x + y - z = 3$$
$$2x - 8y + z = -5$$
$$x - 2y + 9z = 8$$

8. (a) Find the root of the equation $x^3 - 2x - 5 = 0$ by regular Falsi method. (10)

(b) Solve the system of equation using Gauss-Seidel iteration method : (10)

$$8x - y + z = 18$$
$$2x + 5y - 2z = 3$$
$$x + y - 3z = -6$$

UNIT V

9. (a) Find the first and second derivatives of the function at the point $x = 1.5$. (10)

x :	1.5	2.0	2.5	3.0	3.5	4.0
$f(x)$:	3.375	7.0	13.625	24.0	38.875	59.0

(b) Using Taylor's series method compute $y(0.1)$ and $y(0.2)$ given $\frac{dy}{dx} = x + y$, $y(0) = 1$. (10)

5   **D 1290**

10.   (a)   Evaluate $\int_0^1 \frac{dx}{1+x^2}$ using Trapezoidal rule with $h = 0.2$.   (10)

(b)   By applying the fourth order Runge-Kutta method find y (0.2) from $\frac{dy}{dx} = y = x, y(0) = 2$ taking $h = 0.1$.   (10)

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Reg. No. : ....

D 1305   Q.P. Code : [95 DMCA 17]

(For the candidates admitted from 1995 to 1997)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

Second Year

PRINCIPLES OF COMPILER DESIGN

Time : Three hours   Maximum : 100 marks

Answer any FIVE questions, choosing ONE from each Unit.

All questions carry equal marks.

UNIT I

1.   (a)   Explain in detail about compiler writing tools.   (10)

     (b)   Explain the various phases of a compiler with a suitable block diagram.   (10)

Or

2.   Explain in detail about lexical analysis.   (20)

UNIT II

3. (a) Discuss in detail about symbol tables. (10)

    (b) Distinguish between Top-down and Bottom up parsing concepts with suitable illustrations. (10)

    Or

4. (a) Give the construction style of LR parsing and discuss on canonical LR parsing tables. (10)

    (b) Write a short note on operator, procedure parcing. (10)

UNIT III

5. (a) Explain how a syntax directed translation scheme can be used to specify a "desk calculator" program. (10)

    (b) Discuss in detail about quadruples, tripdes and indirect tripules with examples. (10)

    Or

6. (a) Explain in detail about the specification of a simple type checker. (10)

    (b) Write a short note on top down translation. (10)

UNIT IV

7. (a) Explain about the storage allocation strategies. (10)

    (b) Explain any two methods of parsing parameters. (10)

    Or

8. Explain in detail about intermediate code generation and post fix notation. (20)

UNIT V

Explain the code generation algorithm with examples. (20)

    Or

10. Discuss about the principal sources of code optimization. (20)

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D 1296   Q.P. Code : [98 DMCA 33]

(For the candidates admitted from 1998 to 2000)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

First Year — First Semester

DIGITAL COMPUTER FUNDAMENTALS

Time : Three hours   Maximum : 100 marks

Answer ALL questions in all Sections.

Each questions carries the same mark in every Section.

SECTION A — (10 × 2 = 20 marks)

1. What is the Binary equivalent of $(0.6875)_{10}$?

2. Do the operation $(1010100)_2$ - $(1000011)_2$ using 2's compliment.

3. Explain the Truth -Table of universal gates.

4. Simplify using Boolean laws $\overline{A}\,\overline{C}+ABC+A\,\overline{C}$.

5. Define multiplexer.

6. What is the roll of encoder in matrix keyboard used in computer?

7. Define Flip-Flop.

8. Draw the circuit for JK Flip Flop using NAND Gates.

9. Define Accuracy of ADC.

10. What is the advantages of simultaneous conversion ADC?

SECTION B — (5 × 4 = 20 marks)

11. (a) Convert the following numbers in to the base indicated.

    (i) $(1010.01011)_2$ to decimal

    (ii) $(AF 9)_H$ to binary.

    Or

    (b) Discuss about error detection codes.

12. (a) Express the Boolean function $F = A + \overline{B}C$ in the form of minterms.

    Or

    (b) Explain any four Boolean laws with expression and logic diagram.

13. (a) Discuss about Half-Adder and full adder with neat circuit diagram.

    Or

    (b) Compare TTL and CMOS logics.

14. (a) Explain the Truth - Table of

    (i) RS flip-flop

    (ii) JK flip-flop with neat diagram.

    Or

    (b) Compare synchronous and asynchronous counter.

15. (a) Briefly describe about Binary ladder DAC.

    Or

    (b) Explain counter type A/D converter.

SECTION C — (5 × 8 = 40 marks)

16. (a) What is Gray Code? Explain with example.

    (i) State the uses of Gray Code in digital environment.

    (ii) What is the use of 2's compliment operation in digital computer arithmetic operation.

    Or

    (b) (i) Discuss about excess-3 code.

    (ii) Explain the flow of operations performed during multiplication of two numbers in computers.

17. (a) Convert the following expression in to sum of products.

    $(AB+C) (B+\overline{C}D)$.

    Or

    (b) Given the Boolean function

    $F = x\overline{y}z + \overline{x}\,\overline{y}z + \overline{w}xy + wxy + wxy$.

    (i) Obtain the Truth-Table for the function

    (ii) Simplify and obtain truth-table for simplified one

    (iii) Draw the logic diagram of simplified expression.

18. (a) Explain Decoder and Encoder with detailed diagram.

    Or

    (b) Explain half and full subtraction with detailed diagram.

19. (a) Explain Mod-5 synchronous counter using J-K flip flop with timing diagram.

    Or

    (b) With timing diagram briefly describe the asynchronous mod-5 counter using D-Flip-Flop.

20. (a) Explain briefly accuracy and resolution of D/A with expression and diagram.

    Or

    (b) Explain continuous A/D converter.

SECTION D — (2 × 10 = 20 marks)

21. (a) Impliment the following Boolean function with NAND Gate.

    $F(x,y,z)=(1,2,3,4,5,7)$.

    Or

    (b) (i) Draw and explain 2^4 to 1 multiplexer with neat diagram.

    (ii) Compare multiplexer and demultiplexer with encoder and decoder.

22. (a) Briefly describe 4-bit shift register with serial in parallel out and serial in serial out operation.

Or

(b) With neat diagram explain dual scope A/D converter.

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Reg. No. : ....

D 1060   Q.P. Code : [98 DMCA 34]

(For the candidates admitted from 1998 to 2000)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

First Year/First Semester

DISCRETE STRUCTURES

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

SECTION A — (10 × 2 = 20 marks)

1. Prove by induction on n that $\sum_{k=1}^{n} 2k - 1 = n^2$.

2. Write a formula without conditional or the biconditional equivalent to $P \wedge (Q \leftrightarrow R)$.

3. Define semigroup and give an example.

4. If $f : A \to B$ and $g : B \to C$ are mappings and $g \circ f : A \to C$ is one-to-one, prove that f is one-to-one.

5. Define complete graph and draw the undirected complete graph K_5.

6. Define a binary tree. When is it called a full binary tree?

7. Show that the grammar $S \to SS$, $S \to a$, $S \to b$ is ambiguous.

8. Define finite state automata.

9. Define a push down automata.

10. When do you say that a Turing machine (a) accepts a string and (b) does not accept a string?

SECTION B — (5 × 4 = 20 marks)

11. (a) If A, B and C are sets, prove that $A - (B \cap C) = (A - B) \cup (A - C)$ analytically.

Or

(b) Use Mathematical induction to prove that $n^3 + 2n$ is divisible by 3 for $n \geq 1$.

12. (a) Solve $a_{n+1} - 2a_n = 5$, $n \geq 0$, $a_0 = 1$ by using recurrence relation.

Or

(b) Verify that $f \circ (g \circ h) = (f \circ g) \circ h$, when f, g, $h : \mathbb{R} \to \mathbb{R}$ are defined by $f(x) = x^2$, $g(x) = x + 5$ and $h(x) = \sqrt{x^2 + 2}$.

2   D 1060

13. (a) Prove that a tree with n vertices has $(n-1)$ edges.

Or

(b) Construct the binary tree whose inorder and preorder traversal are as follows :

Inorder :   H   D   I   B   E   A   F   C   G

Preorder :   A   B   D   H   I   E   C   F   G

14. (a) Find the language generated by a grammar $S \to aAbB$, $A \to aA / a$, $B \to bB / b$.

Or

(b) If $G = \{(S, A), (a, b), S, P\}$, where P consists of the productions $\{S \to BAB, S \to ABA, A \to AB, B \to BA, A \to aA, A \to ab, B \to b\}$ generate the string "abbbaabab" by using (i) a leftmost and (ii) a rightmost derivation.

15. (a) Design a PDA that accepts a language L over $\{a, b\}$ consisting of equal number of a's and b's.

Or

(b) Define Turing machine.

3   D 1060

SECTION C — (5 × 8 = 40 marks)

16. (a) Find the principal conjunctive and principal disjunctive normal forms of the formula $(P \to (Q \wedge R)) \wedge (\neg P \to (\neg Q \wedge \neg R))$.

Or

(b) Determine the number of positive integers n, $1 \le n \le 2000$ that are not divisible by 2, 3 or 5 but are divisible by 7.

17. (a) Find all mapping from $A = \{1, 2, 3\}$ to $B = \{4, 5\}$ find which of them are one-to-one and which are onto.

Or

(b) Find the code words generated by the parity check matrix $H = \begin{bmatrix} 1 & 0 & 1 & 0 & 0 \\ 1 & 1 & 0 & 1 & 1 \\ 0 & 1 & 0 & 0 & 0 \end{bmatrix}$ when the encoding function is $e : B^2 \to B^5$.
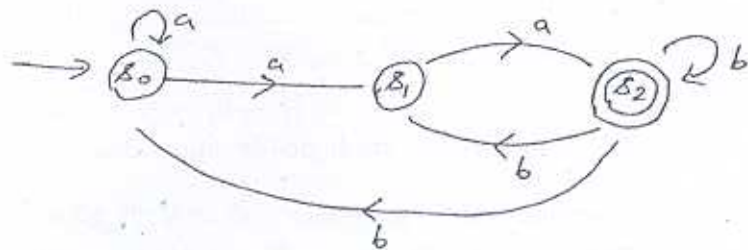
18. (a) Prove that the number n of vertices of a full binary tree is odd and the number of pendant vertices (leaves) of the tree is equal to $\dfrac{(n+1)}{2}$.

Or

(b) Use Dijkstra's algorithm to find the shortest path between the vertices A and H in the weighted graph.
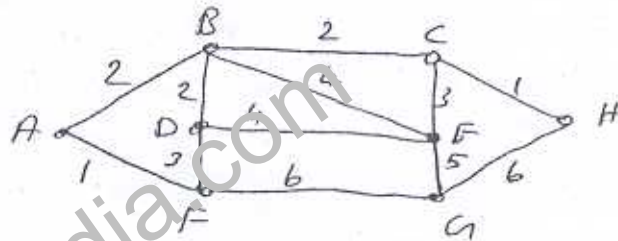
19. (a) Convert the following NFA equivalent to the DFA.

Or

(b) Construct a finite state automata that accepts all strings over $\{a, b\}$ in which every a is followed by b.

4 D 1060

5 D 1060

20. (a) Construct a Turing machine that computes the function $f(n) = n - 3$ if $n \geq 3$ and $f(n) = 0$ for $n = 1, 2$ for all positive integers n.

Or

(b) Design a PDA that accepts $\{a^n b^{2n} / n \geq 1\}$ by empty stack.

SECTION D — (2 × 10 = 20 marks)

21. (a) Obtain the principal conjunctive normal form of the formula S given by $(\neg P \rightarrow R) \wedge (Q \rightleftarrows P)$.

Or

(b) (i) Use Mathematical induction to show that $1 + 2 + 2^2 + \cdots + 2^n = 2^{n+1} - 1$.

(ii) Show that $\neg p \rightarrow (q \rightarrow r)$ and $q \rightarrow (p \vee r)$ are logically equivalent.

22. (a) Consider the grammar $G = (N, T, S, P)$ where $N = \{S, B\}$, $T = \{a, b, c\}$ and $P = \{S \rightarrow aSBc, S \rightarrow bc, cB \rightarrow Bc, bB \rightarrow bb\}$. Check whether this grammar generates the words abc, $aabbcc$, aab, $aaabbbccc$, $abbcc$. Hence identify the language generated by this grammar.

Or

(b) Find the DFA equivalent to the NFA for which the state-table is given in

S \ 1	f	
	a	b
S_0	S_0, S_1	S_2
S_1	S_0	S_1
S_2	S_1	S_0, S_1

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D 1061 Q.P. Code : [98 DMCA 35]

(For the candidates admitted from 1998 to 2000)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

First Year/First Semester

COMPUTER ORIENTED STATISTICAL AND NUMERICAL METHODS

Time : Three hours Maximum : 100 marks

Answer ALL questions.

SECTION A — (10 × 2 = 20 marks)

1. Define harmonic mean.

2. Define arithmetic mean.

3. Define Poisson distribution.

4. Write down the multiplication theorem on probability.

5. Define 'probable error'.

6. Define 'median'.

7. What do you meant by student's t distribution?

8. Define 'uniform distribution'.

9. Given $y' = x + y$, $y(0) = 1$, find $y(0.1)$ by Euler's method.

10. Write Milne's predictor corrector formula.

SECTION B — (5 × 4 = 20 marks)

11. (a) Obtain the median for the following frequency distribution :

x: 1 2 3 4 5 6 7 8 9

f: 8 10 11 20 20 25 15 6 9

Or

(b) Fit a straight line to the following data :

x: 1 2 3 4 5

f: 16 20 24 25 29

12. (a) State and prove Baye's theorem.

Or

(b) Ten coins are thrown simultaneously. Find the probability of getting atleast seven heads.

13. (a) Write short notes on Newton-Raphson method.

Or

(b) What are the various types of sampling? Explain.

2 D 1061

14. (a) Solve by Gauss Jordan method :

$2x - 3y + z = -1$

$x + 4y + 5z = 25$

$3x - 4y + z = 2$.

Or

(b) Solve the system by Gauss Seidal's method :

$10x - 2y + z = 9$

$2x + 20y - 2z = -44$

$-2x + 3y + 10z = 22$.

15. (a) Explain briefly Gauss elimination method of solving simultaneously equations :

Or

(b) Evaluate $\int_0^1 \frac{dx}{1+x}$ convert to three decimal places by trapezoidal rule with $h = 0.5$.

SECTION C — (5 × 8 = 40 marks)

16. (a) Fit a parabola of second degree to the following data :

x: 0 1 2 3 4

y: 1 1.8 1.3 2.5 6.3

Or

3 D 1061

(b) Obtain the equation of two lines of regressions. Also estimate of x for $y = 70$.

x: 65 66 67 67 68 69 70 72

y: 67 68 65 68 72 72 69 71

17. (a) Four dice are thrown. What is the probability that the sum of the numbers appearing on them is 18?

Or

(b) Fit a Poisson distribution to the following data with respect to the number of red blood corpuscles (x) per cell :

x: 　　　　0　1　2　3　4　5

No of cells (f) : 142 156 69 27 5 1

18. (a) Using bisection method, obtain a roots of $x^3 - 4x - 9 = 0$, correct to three decimal places.

Or

(b) Compare Gauss elimination and Gauss-Seidel iterative methods.

19. (a) Calculate the standard deviation of the following data :

14, 22, 9, 15, 20, 17, 12, 11.

Or

(b) State and prove 'multiplication theorem' of probabilities.

4　　　　　　　D 1061

20. (a) Given that $y' = 3x + \frac{1}{2}y$, $y(0) = 1$. Taking $h = 0.1$ and using Runge-Kutta fourth order method. Find $y(0.1)$ and $y(0.2)$.

Or

(b) Solve the first order differential equation $\frac{dy}{dx} = \frac{y - x}{y + x}$ in the interval $0 \le x \le 0.1$, by Euler's method, taking $h = 0.02$, if $y = 1$ when $x = 0$ and find the value of y when $x = 0.1$.

SECTION D — (2 × 10 = 20 marks)

21. (a) Use the Predictor-corrector formula for tabulating a solution of $10\frac{dy}{dx} = x^2 + y^2$, $y(0) = 1$ for the range $0.5 \le x \le 1.0$.

Or

(b) Using Newton-Raphson methods, find correct to four decimal places, the root between 0 and 1 of the equation $x^3 - 6x + 4 = 0$.

5　　　　　　　D 1061

22. (a) Evaluate $I = \int_0^6 \dfrac{dx}{1+x^2} dx$ using

    (i) Trapezoidal rule

    (ii) Simpson's one-third rule.

<div align="center">Or</div>

(b) Calculate the rank correlation coefficient for the following data :

	1	2	3	4	5
Marks in English :	40	46	54	60	70
Marks in Tamil :	45	45	50	43	40

Reg. No. : ....

D 1556 Q.P. Code : [98 DMCA 36]

(For the candidates admitted from
1998 to 2000)

M.C.A. DEGREE EXAMINATION, MAY 2 DEC 2010

First Year/First Semester

ACCOUNTING AND FINANCIAL MANAGEMENT

Time : Three hours Maximum : 100 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.

All questions carry equal marks.

1. What is Double Entry System?

2. List out the causes of depreciation.

3. When do you prepare a manufacturing account?

4. What are the merits of a trial balance?

5. What is absorption costing?

6. What do you mean by BEP?

7. Define budgetary control.

8. Write a short note on cash budget.

9. What do you understand by capital budgeting?

10. What is discounted cash flow method?

SECTION B — (5 × 4 = 20 marks)

Answer ALL the questions.

All questions carry equal marks.

11. (a) Z Ltd. leased on June 30, 2004 on iron ore mine for a sum of Rs. 1,00,000. It is estimated that the total quantity of ore on the mine is 20,000 tonnes. The annual output is as follows:

Year : 2004 2005

Tones : 1000 4000

Using the depletion method of depreciation show the Mine a/c for the two years.

Or

(b) State whether the following are current assets.

Inventories

Cash

Plant

Accounts receivable

Debtors

Building

Equipment.

12. (a) Distinguish between "Journal" and "Ledger".

Or

(b) You are required to prepare the Manufacturing Account as on 31.12.2006.

	Rs.
Work-in-progress on 1.1.2006	4,000
Work-in-progress on 31.12.2006	5,000
Material consumed	65,000
Fuel and Coal	1,100
Factory expenses	54,000

13. (a) From the following data, calculate the earnings per hour under the Rowan scheme :

Time allowed for job : 5 hours

Time taken : 4 hours

Rate per hour : Rs. 8.

Or

(b) Calculate BEP form the following particulars :

Fixed expenses Rs. 1,50,000

Variable cost per unit 10

Selling price per unit 15.

14. (a) From the particulars given below prepare a Cash Budget for the month June 2006.

Expected sales :   April 2006 Rs. 2,00,000 ;
                    May Rs. 2,20,000;
                    June Rs. 1,90,000.

Credit allowed to customer is two month.

Estimated purchases :   May 2006 – Rs.1,20,000;
                         June 1,10,000

Estimated Cash Balance as on 1st June 2006 is Rs. 42,500.

Or

(b) What are the main steps in budgetary control?

15. (a) Calculate pay back period for a project which requires a cash outlay of Rs. 10,000 and generates cash inflows of Rs. 2,000, Rs. 4,000, Rs. 3,000 and Rs. 2,000 in the first, second, third and fourth year respectively.

Or

(b) Explain the need of capital budgeting.

4   D 1556

SECTION C — (5 × 8 = 40 marks)

Answer ALL the questions.

All questions carry equal marks.

16. (a) Machinery were purchased on 1.1.2006 for Rs. 40,000. On 30th June, same year another second hand machine was purchased for Rs. 15,000 and Rs. 5,000 was spent for repairs. On 30th June, 2007 the second machine was sold for Rs. 15,000. Prepare Machinery Account after allowing depreciation of 10% p.a. on the WDV method.

Or

(b) What are the advantages of Double Entry Book-keeping?

17. (a) You are required to prepare the Profit and Loss Account for the year ending 31st March 2004 :

	Rs.
Salary and wages	40,000
Advertisement	9,000
Auditor's fees	35,000
Bad Debts	6,000
Provision for Bad Debts	16,000
Interest (Cr)	15,500
Commission Received	10,000
Trading Accounting	1,71,640

Or

5   D 1556

(b) The following are the balances in the Ledger of Mr. Sheri for the year ended 31st March, 2005.

	Rs.
Opening stock :	
Raw materials	20,000
Work-in-progress	3,000
Purchase of raw materials	50,000
Sales	2,40,000
Wages	32,000
Closing Stock :	
Raw Materials	20,000
Work-in-progress	4,000

Prepare Manufacturing Accounting for the year ended 31st March, 2005.

18. (a) Calculate re-order level and maximum level from the following :

Re-order quantity 1500 units

Recorder period 4 to 6 weeks

Maximum consumption 400 units per week

Minimum consumption 250 units week.

Or

(b) The following information relating to a company to given to you :

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

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

19. (a) Draw up a flexible budget for overhead expenses on the basis of the following data :

	At 70% Capacity Rs.	At 80% Capacity Rs.	At 90% Capacity Rs.
Variable Overheads:			
Indirect labour	-	12,000	-
Stores	-	4,000	-
Semi-Variable Overheads:			
Power (30% fixed)	-	20,000	-
Repairs (40% variable)	-	2,000	-
Fixed overheads:			
Depreciation	-	11,000	-
Insurance	-	3,000	-
Salaries	-	10,000	-

Or

(b) What are the main functions of budget controller?

20. (a) Project X initially costs Rs. 25,000. It generates the following cash inflows :

Year	Cash inflows Rs.	Present value of Re. a At 10 %
1	9,000	0.909
2	8,000	0.826
3	7,000	0.751
4	6,000	0.683
5	5,000	0.621

Suggest whether the project should be accepted or not.

Or

(b) What are the demerits of Rate of Return?

SECTION D — (2 × 10 = 20 marks)

Answer ALL the questions.
All questions carry equal marks.

21. (a) From the following balances extracted from the books of Thiru Kishore. Prepare Trail Balance 31st March 2006.

Particular	Rs.
Capital	1,40,000
Returns Outwards	500
Returns Inwards	700
Machinery	25,000
Discount	1,300

Particular	Rs.
Cash in hand	6,000
Debtors	16,000
Motor Cycle	24,000
Salaries	2,000
Rent received	750
Purchases	90,000
Sales	1,60,000
Building	85,000
Postage	1,500
Discount received	100
Cash at bank	19,800
Stock 1.4.2005	20,000
Creditors	7,000
Interest received	1,250
Generator	18,300

Or

(b) A company, whose accounting year is the calendar year, purchased on 1st April, 2004 machinery costing Rs. 30,000.

D 1556

D 1556

It purchased further machinery on 1st October, 2003 costing Rs. 20,000 and on 1st July, 2005 costing Rs. 10,000.

On 1st January, 2006 one third of the machinery installed on 1st April, 2004 became obsolete and was sold for Rs. 3,000.

Show how Machinery Account would appear in the books of the company for three years. It being given that machinery was depreciated by Fixed Instalment Method @ 10 % Per annum.

22. (a) Assuming that the cost structure and selling prices remain the same in periods I and II find out:

(i) P/V ratio

(ii) B. E. Sales

(iii) Profit when sales are Rs. 1,00,000

Period	Sales Rs.	Profit Rs.
I	1,20,000	9,000
II	1,40,000	13,000

Or

(b) The Alpha Co. Ltd., is considering the purchase of a new machine. Two alternative machines (A and B) have been suggested, each having an initial cost of Rs. 4,00,000 and requiring Rs. 20,000 as additional

working capital at the end of 1st year. Earnings after taxation are expected to be as follows :

Cash inflows :

Year	Machine A Rs.	Machine B Rs.
1	40,000	1,20,000
2	1,20,000	1,60,000
3	1,60,000	2,00,000
4	2,40,000	1,20,000
5	1,60,000	80,000

The company has a target of return on capital of 10% and on this basis, you are required to compare the profitability of the machines and state which alternative you consider financially preferable.

Note : the following table gives the resent value of Re. 1 due in 'n' number of years :

Year :	1	2	3	4	5
Present value at 10% :	0.91	0.83	0.75	0.68	0.62

D 1297 Q.P. Code : [98 DMCA 38]

(For the candidates admitted from 1998 to 2000)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

First Year/Second Semester

COMPUTER SYSTEM ARCHITECTURE

Time : Three hours Maximum : 100 marks

Answer ALL questions.

SECTION A — (10 × 2 = 20 marks)

1. Define execution cycle.

2. What is program control?

3. Describe the sign-magnitude form of binary number.

4. Explain multiplication algorithm.

5. What are peripheral devices?

6. Define interrupt.

7. What is cache memory?

8. Write about bubble memory.

9. What is meant by pipelined processor?

10. What is super computer?

SECTION B — (5 × 4 = 20 marks)

11. (a) Write short notes on infix, prefix and postfix notations.

Or

(b) Briefly discuss about instruction codes.

12. (a) Explain about micro programming sequence.

Or

(b) Discuss the algorithm of division of two binary numbers.

13. (a) Explain the bus scheduling.

Or

(b) Write notes on I/O channels.

14. (a) Describe the concept of digital recording techniques.

Or

(b) Discuss about magnetic core memory.

15. (a) Write about classification of computer systems.

Or

(b) What do you meant by array processor?

SECTION C — (5 × 8 = 40 marks)

16. (a) With neat diagram describe central processor organisation.

Or

(b) With detailed flow diagram explain all addressing modes.

17. (a) Write the algorithm of addition and subtraction of signal magnitude numbers with suitable examples.

Or

(b) Draw a neat diagram for processor configuration and explain.

18. (a) What are the interrupt available in computer systems? Explain the interrupt handling procedure.

Or

(b) Briefly explain the asynchronous data transfer.

19. (a) Explain various semiconductor memory.

Or

(b) Describe notes on associative memory.

20. (a) Discuss about vector processor.

Or

(b) Briefly discuss about super computer.

SECTION D — (2 × 10 = 20 marks)

21. (a) Discuss the following with diagram :

    (i) Stack organization

    (ii) Process bus organization.

Or

(b) Explain :

    (i) Arithmetic processor design

    (ii) Micro instruction format.

22. (a) Briefly discuss the following :

    (i) DMA and its need in computer systems

    (ii) I/O interface.

Or

(b) Explain :

    (i) Magnetic core memory

    (ii) Multiply the signed binary number 01010011 (multiplication) and 11000101 (multiplier).

4   D 1297

D 1306   **Q.P. Code : [98 DMCA 39]**

(For the candidates admitted from 1998 to 2000)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

First Year/Second Semester

SYSTEM SOFTWARE

Time : Three hours   Maximum : 100 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL the questions.

1.   Define - Language Processor.

2.   What do you mean by binding?

3.   State the advantages of Assembly Language.

4.   Draw the schematic diagram of two pass assembler.

5.   What is meant by Macro? Give example.

6.   Write the difference between compiler and interpreter.

7.   Define - Dynamic pointer.

8. What is a software tool?

9. Linker-define with example.

10. Narrate the different forms of text editors.

SECTION B — (5 × 4 = 20 marks)

Answer ALL the questions.

11. (a) Differentiate the problem oriented language and procedure oriented language in detail.

Or

(b) Explain in detail about language processing with example.

12. (a) Briefly discuss about semantic analysis.

Or

(b) Discuss with an example about LL(1) parser.

13. (a) Write note on single pass translation.

Or

(b) Explain in detail about nested macro calls.

14. (a) Discuss in detail about recursion with example.

Or

(b) Explain the term Relocation.

2   D 1306

15. (a) Narrate the facilities provided by the debugging monitors with necessary example.

Or

(b) Comment on the statement "Dynamic debugging is easier to implement in interpreter than in compilers".

SECTION C — (5 × 8 = 40 marks)

Answer ALL the questions.

16. (a) Elaborate in detail about language processor development tools.

Or

(b) With suitable example. Discuss about top-down parsing.

17. (a) Explain with necessary examples about assembly language statements.

Or

(b) Narrate the problems of single pass assembler in detail.

18. (a) Discuss in detail about the advanced macro facilities.

Or

(b) Explain in detail about macro-assembler.

3   D 1306

19. (a) With suitable example, explain about the compilation of control structures.

Or

(b) Discuss about the various parameters of parsing mechanism in detail.

20. (a) Describe about interpreters in detail.

Or

(b) Explain in detail about the design of compilers.

SECTION D — (2 × 10 = 20 marks)

Answer ALL the questions.

21. (a) Explain in detail about the design of two-pass assembler.

Or

(b) Discuss in detail about the design of a Macro preprocessor.

22. (a) Describe about the various code optimization techniques in detail.

Or

(b) Explain about how software tools are used for program development. Discuss with example.

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D 1298   **Q.P. Code : [98 DMCA 41]**

(For the candidates admitted from 1998 to 2000)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

First Year/Second Semester

Part III — Main

DATA AND FILE STRUCTURES

Time : Three hours   Maximum : 100 marks

Answer ALL the questions.

PART A — (10 × 2 = 20 marks)

1.   Give few examples for data structures.

2.   List down any four application of data structure.

3.   What are the two operations of stack?

4.   Write postfix from of the expression
      − A + B − C + D.

5.   List three examples that uses linked list.

6.   Define tree.

7. What are the two main classifications of sorting based on the source of data?

8. What are the various factors to be considered in deciding a sorting algorithm?

9. Expand DASD.

10. Define inverted files.

PART B — (5 × 4 = 20 marks)

11. (a) Write short note on structure.

Or

(b) How will you represent the linear array in memory?

12. (a) Explain pattern matching.

Or

(b) What do you mean by queue? Define insert and delete operations performed by queue.

13. (a) Write short note on B+ trees.

Or

(b) Describe the node structure for sparse matrices.

14. (a) Write short note on hash tables.

Or

(b) Write a procedure for binary search algorithm.

15. (a) What are the different attributes of a file?

Or

(b) What are the different operations performed on files.

PART C — (5 × 8 = 40 marks)

16. (a) Write a brief note on ordered list.

Or

(b) Write short note on Arrays.

17. (a) Write a algorithm for inserting and deleting an element from the stack.

Or

(b) Convert the following infix into postfix expressions.

(i) $A + B * C$. (2)

(ii) $A + [(B + C) + (D + E) * F]/G$. (6)

18. (a) Write a procedure for quick sort algorithm.

Or

(b) Explain the term symbol tables with suitable examples.

19. (a) Write short note on AVL trees.

Or

(b) Discuss on garbage collection and compaction.

20. (a) Write short note on multi key file organization.

Or

(b) Explain any two index techniques.

PART D — (2 × 10 = 20 marks)

21. (a) Discuss on singly linked lists with suitable examples.

Or

(b) Explain the following :

(i) Static tree. (5)

(ii) Balanced merge. (5)

22. (a) What are the various file organization? Discuss.

Or

(b) Write short note on :

(i) String searching. (5)

(ii) Red Black tree. (5)

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D 1559　　　　　Q.P. Code : [98 DMCA 43]

(For the candidates admitted from 1998 to 2000)

M.C.A. DEGREE EXAMINATION, MAY 2010.

Second Year/Third Semester

STRUCTURED SYSTEM ANALYSIS AND DESIGN

Time : Three hours　　　　　Maximum : 100 marks

Answer ALL questions.

SECTION A — (10 × 2 = 20 marks)

1. What are subsystems?

2. Write any two characteristics of system analyst.

3. What do you mean by system investigation?

4. What is record searching?

5. Define : Logical system

6. How the dialogue design is achieved?

7. Mention the properties of report writing.

8. What is a user manual?

9. What is program specification?

10. Mention the importance of test data file.

SECTION B — (5 × 4 = 20 marks)

11. (a) Write a brief note on system concepts.

Or

(b) Write briefly about systems life cycle.

12. (a) Give the methods of investigation in brief.

Or

(b) Explain : Observation.

13. (a) How to analyse the user requirements?

Or

(b) Write a note on File design.

14. (a) Discuss the problems in communication written reports.

Or

(b) Mention the uses of operational manual.

15. (a) Give the importance of study proposal.

Or

(b) Write about IS requirements.

SECTION C — (5 × 8 = 40 marks)

16. (a) Write in detail about Information Systems.

Or

(b) (i) Mention the role of system analyst.

(ii) Explain briefly about types of systems.

17. (a) Explain in detail about sampling.

Or

(b) Write a brief note on

(i) Record searching

(ii) Special purpose records.

18. (a) Explain in detail about database design.

Or

(b) Write in detail about system security.

19. (a) Write the principles of report writing.

Or

(b) Write a detailed note on standard documentation.

20. (a) Discuss the importance of system audit report.

Or

(b) Explain in detail about system proposal.

SECTION D — (2 × 10 = 20 marks)

21. (a) Describe in detail about Information systems.

Or

(b) Explain in detail about Physical Design of Computer Systems.

22. (a) Discuss in detail about system implementation.

Or

(b) Explain in detail about Management Information Systems.

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D 1307   Q.P. Code : [98 DMCA 46]

(For the candidates admitted from 1998 to 2000)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

Second Year/Third Semester

COMPUTER NETWORKS

Time : Three hours   Maximum : 100 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Write the difference between LAN and WAN.

2. List out various network topologies.

3. Define ISDN.

4. Differentiate Multicasting and Broadcasting.

5. What is CSMA/CD?

6. What is meant by congestion control?

7. List the functions of session layer.

8. Define cryptography.

9. What is piggybacking?

10. Define TFTP.

SECTION B — (5 × 4 = 20 marks)

Answer ALL questions.

11. (a) Explain various types of computer networks.

Or

(b) Define and differentiate Internet, Intranet and Extranet.

12. (a) Explain the difference between TCP and UDP protocol.

Or

(b) Brief frequency code modulation technique in detail.

13. (a) Explain the functions of data link layer.

Or

(b) Discuss about Flow and congestion control.

14. (a) State the differences between circuit and packet switching.

Or

(b) Discuss the design issues of transport layer.

2   D 1307

15. (a) How does DSN perform name resolution?

Or

(b) Discuss the difference between public key cryptography and private key cryptography.

SECTION C — (5 × 8 = 40 marks)

Answer ALL questions.

16. (a) Explain the term layer, protocol and interface.

Or

(b) Explain the working principles of internetworking in detail.

17. (a) Discuss about the services provided by transport layer.

Or

(b) Describe about various transmission media in network communication.

18. (a) Differentiate encryption and decryption with an example.

Or

(b) Explain in detail about Sliding window protocol.

3   D 1307

19. (a) Briefly discuss about various routing algorithms.

Or

(b) Write a detailed note on RPC.

20. (a) Discuss the functions of application layer.

Or

(b) Write a short note on HTTP and FTP.

SECTION D — (2 × 10 = 20 marks)

Answer ALL questions.

21. (a) Explain the OSI reference model in detail with a neat diagram.

Or

(b) Explain application layer design issues, file transfer, access and management in detail.

22. (a) Describe in detail about various congestion control algorithms.

Or

(b) Explain in detail about the various techniques of digital encoding of digital information.

Reg. No. : ....

D 1062   Q.P. Code : [98 DMCA 47]

(For the candidates admitted from 1998 to 2000)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

Second Year — Third Semester

OPERATIONS RESEARCH

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

SECTION A — (10 × 2 = 20 marks)

1.   Define a dual of the LPP.

2.   Define basic solution of LPP.

3.   What is surplus variable?

4.   State the fundamental theorem of dual ty.

5.   Define transportation problem.

6.   Define inventory models.

7.   Define order cycle.

8.   Define single channel model.

9.   What is individual's replacement model?

10. Define service discipline in a queue.

11. (a) Write a short note on two phase method.

Or

(b) State some limitations of LPP.

12. (a) What is degeneracy in T.P? How it is resolved?

Or

(b) Formulate the dual of the following LPP.

Maximize : $Z = 2x + 3y$

Subject to $-x + 2y \leq 4$

$$x + y \leq 6$$
$$x + 3y \leq 9$$
$$x, y \geq 0$$

13. (a) Distinguish between maximization and minimization problem in assignment.

Or

(b) Write a short note on the relation between linear programming and dynamic programming.

14. (a) What is Economic order quantity?

Or

(b) The owner of a single service station expects a customer every 3 minutes and the service time on the average is 3/2 minutes. Obtain the mean length of waiting time.

15. (a) What is replacement? Describe some important replacement situations.

Or

(b) State some of the simple replacement policies and give the average cost functions for the same.

SECTION C — (5 × 8 = 40 marks)

16. (a) Solve the following LPP using simplex method.

Max $Z = 45x + 80y$

Subject to
$$5x + 20y \leq 400$$
$$10x + 15y \leq 450$$
$$x, y \geq 0$$

Or

(b) Use two phase simplex method to solve the following LPP.

Max $z = 5x + 8y$

Subject to $3x + 2y \geq 3$

$$x + 4y \geq 4$$
$$x + y \leq 5$$
$$x, y \geq 0$$

17. (a) Apply the principles of duality to solve the LPP

Max $z = 5x + 8y$

Subject to $x + y \leq 2$

$$x - 2y \geq 0$$
$$-x + 4y \leq 1$$

where $x, y, z \geq 0$

Or

(b) Obtain the initial basic feasible solution to the following transportation problem.

	A	B	C	D	Supply
A	1	2	2	4	6
B	4	3	2	0	8
C	0	2	2	1	10
Demand	4	6	8	6	

18. (a) Solve the following assignment problem to find the maximum total expected scale

		Area			
		1	2	3	4
Salesman	A	42	35	28	21
	B	30	25	20	15
	C	30	25	20	15
	D	24	20	16	12

Or

(b) Use dynamic programming to solve the LPP

Max $z = x + 9y$

Subject to $2x + y \leq 25$

$$y \leq 11$$
$$x, y \geq 0$$

19. (a) A company buys in lots of 500 boxes which is a three month supply. The cost per box is Rs. 125.00 and the ordering cost is Rs. 150.00. The inventory carrying cost is estimated at 20 % of unit value.

(i) Determine the total annual cost of the existing inventory policy.

(ii) How much money could be saved by employing the economic order quantity?

Or

(b) A Ticket window is manned by a single server. The arrival to the ticket window is in Poisson pattern with average interval time as 2 minutes. The time to serve a customer is exponentially distributed with mean 90 seconds. Find

(i) The expected numbers of customers waiting in the queue

(ii) The expected ideal time for the server in each day

(iii) The average waiting time in the queue, in the steady state.

20. (a) The initial cost of an item is Rs. 15,000 and maintenance cost or running cost for different years are given below :

Year	1	2	3	4	5	6	7
Cost	2500	3000	4000	5000	6500	8000	10000

Find the optimum replacement period if the capital is worth 10% and no salvage value.

Or

(b) Explain various types of replacement decisions.

SECTION D — (2 × 10 = 20 marks)

21. (a) Solve the following LLP graphically

Max $z = 3x + 5y$

Subject to $-3x + 4y \leq 12$

$2x - y \geq -2$

$2x + 3y \leq 12$

$x \leq 4$

$y \geq 2$

where $x, y \geq 0$

Or

(b) Obtain the initial basic feasible solution to the following transportation problem By VAM.

	P	Q	R	S	
A	30	25	40	20	100
B	29	26	35	40	250
C	31	33	37	30	150
	90	160	200	50	

22. (a) Derive the Expression for single channel infinite population model.

Or

(b) A manufacturer has to supply 12,000 units of a product per year to his customer. The ordering cost is Rs 100 per order and the carrying cost is Rs 0.80 per item per month. The shortage cost is not allowed and the replacement is instantaneous. Determine

(i)   The economic order quantity

(ii)   The time between orders

(iii) The number of orders per year.

D 1562   Q.P. Code : [98 DMCA 51]

(For the candidates admitted from 1998 to 2000)

M.C.A. DEGREE EXAMINATION, MAY 2010.

Second Year/Fourth Semester

COMPUTER GRAPHICS

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

All questions carry equal marks.

SECTION A — (10 × 2 = 20 marks)

1. Define resolution.

2. What are the various categories of flat-panel display?

3. Define window and viewport.

4. What do you mean by shear?

5. Define mouse.

6. What are the common keys of a keyboard?

7. What is depth cueing?

8. Define view reference point.

9. What is wireframe visibility method?

10. What do you mean by flat shading?

SECTION B — (5 × 4 = 20 marks)

11. (a) Write the DDA line algorithm.

Or

(b) Explain raster scan system.

12. (a) Explain curve clipping with example.

Or

(b) Explain how a window-to-viewport coordinate transformation takes place.

13. (a) What is basic positioning method. Explain.

Or

(b) Explain track ball and space ball.

14. (a) Explain about depth cueing.

Or

(b) Explain in deal about 3-D shearing.

15. (a) What are the relative surface characteristics?

Or

(b) Explain the ray-casting method.

SECTION C — (5 × 8 = 40 marks)

16. (a) Explain with example about hard copy devices.

Or

(b) Write and explain bresenham's line algorithm.

17. (a) Explain the types of polygon clipping.

Or

(b) Explain the Cohen-Sutherland line clipping.

18. (a) Write notes on digitizers.

Or

(b) Briefly discuss about voice systems.

19. (a) Explain the 3-D translation with example.

Or

(b) Explain about parallel projection technique.

20. (a) Write notes on surface hidden method.

Or

(b) Explain in detail about RGB colour model.

SECTION D — (2 × 10 = 20 marks)

21. (a) Explain briefly about character generation.

Or

(b) What are the basic transformations? Explain with examples.

22. (a) Explain 3-D rotation with example.

Or

(b) Write a note on shading methods.

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Reg. No. : ....

D 1063   Q.P. Code : [98 DMCA 52]

(For the candidates admitted from 1998 to 2000)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

Second Year/Fourth Semester

Elective MICROPROCESSOR AND ITS
APPLICATIONS

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

SECTION A — (10 × 2 = 20 marks)

1. Define Bus and its classification.

2. Mention the significance of PC.

3. What is an interrupt?

4. Mention the advantages of dynamic memory.

5. What is DMA?

6. Comment on the purpose of 8279 controller.

7. Why 8085 Buses are multiplexed?

8. What is meant by ALE?

9. How does a 8085 processor be partitioned when used as a control processor?

10. Define system monitor.

SECTION B — (5 × 4 = 20 marks)

11. (a) Write short notes on control and stutus signals available in 8085.

Or

(b) Write short notes on interrupt address vector.

12. (a) Brief on the execution steps carried art by a processor in each machine cycle when STA 2065 H is executed.

Or

(b) Why 16 bit address is stored in memory to the reversed order low order byte first followed by high-order byte?

13. (a) What is meant by memory mapped I/O?

Or

(b) Highlight the important features of 8253 programmable internal timer.

14. (a) Explain the syntax any four 8085 instruction that can be used for data transfer operation with an example.

Or

(b) Explain the syntax of any four 8085 instruction that can be used as branch instruction with an example.

15. (a) Mention the advantages that can be gained by using microcontrollers in automobiles.

Or

(b) Enumerate the important usage of internal timer.

16. (a) Compare and contrast the important features of 8085 and 8086.

Or

(b) With a neat block diagram explain the architecture of 8085.

17. (a) Write an assembly language program to transfer a block of 'n' numbers starting at location XXXX to a new destination whose address is YYYY.

Or

(b) Explain in detail about the different formats of data transfer.

18. (a) With a neat diagram explain the different modes of operation of 8255-programmable peripheral interface.

Or

(b) Explain the function of 8257 programmable DMA controller with relevant diagram.

19. (a) Describe the internal function of 80286 processor with relevant internal block diagram.

Or

(b) Explain the 8085 instruction format and list out the different addressing modes supported by 8085 with examples.

20. (a) Briefly discuss the system requirements and overall system design of a temperature monitoring system.

Or

(b) Explain briefly about the software development aids in a microcomputer development system (MDS).

SECTION D — (2 × 10 = 20 marks)

21. (a) Explain the organization and architecture of 80386 processor.

Or

(b) Mention the advantages and disadvantages of interrupt driven data transfer compared to other types of data transfer.

22. (a) Explain the working principle of A/D and D/A converter with appropriate diagram.

Or

(b) Discuss the applications of a micro processor and explain any two of the significant applications in detail.

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D 1064   Q.P. Code : [98 DMCA 53]

(For the candidates admitted from 1998 to 2000)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

Third year Fifth Semester

PRINCIPLES OF MANAGEMENT AND MARKETING

Time : Three hours   Maximum : 100 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.

1. List out any four functions of 'Management'.

2. Define Planning.

3. What do you mean by 'Formal Organisation'?

4. What is recruitment?

5. What are the elements of 'Direction'?

6. What is a 'Budget'?

7. Define ' marketing '.

8. What is a 'product'?

9. Who are 'Agent Middlemen'?

10. Define ' marketing research'.

SECTION B — (5 × 4 = 20 marks)

Answer ALL questions.

11. (a) Distinguish between Management and Administration.

Or

(b) What are the steps in Planning?

12. (a) What are the bases of departmentation?

Or

(b) What are the stages involved in the selection of a candidate?

13. (a) Narrate the Maslow's Theory of Motivation'.

Or

(b) What are the qualities required for a good leader?

14. (a) Bring out the bases of 'Market segmentation'.

Or

(b) What are the functions of Packaging?

2 D 1064

15. (a) Describe the companies major strategies pricing imitative and new products.

Or

(b) What are the six major steps in sales for management?

SECTION C — (5 × 8 = 40 marks)

Answer ALL questions.

16. (a) What the Principles of Scienti Management?

Or

(b) What is MBO?

17. (a) Explain the various methods of Training.

Or

(b) Briefly explain the span of control.

18. (a) What are the principles of direction?

Or

(b) What are the harriers to effecti communication?

3 D 100

19. (a) Describe the Product Life Cycle concept.

Or

(b) What is 'Brand'? What are the qualities required for a good 'Brand'?

20. (a) What are the functions of a 'Wholesaler'?

Or

(b) What are the various consumer promotion tools available for the marketer for the Promotion of sales?

SECTION D — (2 × 10 = 20 marks)

Answer ALL questions.

21. (a) Explain the various types of plans.

Or

(b) What are the various sources of recruitment?

22. (a) Explain the various stages in the new product development.

Or

(b) How do you conduct 'Marketing Research?

4 D 1064

D 1564   **Q.P. Code : [98 DMCA 55]**

(For the candidates admitted from 1998 to 2000)

M.C.A. DEGREE EXAMINATION, MAY 2010.

Third Year/Fifth Semester

SOFTWARE PROJECT MANAGEMENT AND
QUALITY ASSURANCE

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1.   What are various costs?

2.   What are various classification of prototypes?

3.   Where are estimates done?

4.   What are the main stages in creating a project schedule?

5.   What is Gantt chart?

6.   Oldham and Hackman suggest that the satisfaction that a job gives is based on five factors. What are they?

7.   Mention the techniques that enhance software quality.

8. Define software reliability.

9. Mention product revision quality factors.

10. What is "critical path"?

PART B — (5 × 4 = 20 marks)

11. (a) Explain the characteristics that distinguish the projects.

Or

(b) Explain the activities covered by software project management.

12. (a) Explain the basis for software estimating.

Or

(b) Explain the objectives of activity planning.

13. (a) What is cost monitoring? Explain.

Or

(b) Explain the Taylorist model for motivation to work.

14. (a) Give out some of the automated tools for software maintenance.

Or

(b) Explain the concept of software repair.

15. (a) What are the major roles of a software quality assurance group?

Or

(b) Discuss with some of the software quality matrics.

PART C — (5 × 8 = 40 marks)

16. (a) Explain the cost-benefit evaluation techniques.

Or

(b) Explain the reasons that have been but forward for prototyping.

17. (a) Explain the difference between top-down and bottom up estimating.

Or

(b) Explain the techniques for estimating the effect of risk on the project's activity network and schedule.

18. (a) Write short notes on priority monitoring.

Or

(b) How leadership quality and decision making capability are essential for a team work in projects?

19. (a) What are the maintenance issues? Explain.

Or

(b) Write short notes on software errors and faults.

20. (a) Explain "quality assurance methodology".

Or

(b) Explain the various computer aided techniques used for structured documentation.

PART D — (2 × 10 = 20 marks)

21. (a) Explain the step wise project planning in detail.

Or

(b) (i) Explain the COCOMO model in detail.

(ii) Write short notes on : Nature of risk.

22. (a) Explain the problems with students projects.

Or

(b) Explain how IEEE standard is useful for implementation of software quality assurance.

———————

D 1308   **Q.P. Code : [98 DMCA 56]**

(For the candidates admitted from 1998 to 2000)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

Third Year/Fifth Semester

DISTRIBUTED COMPUTING

Time : Three hours   Maximum : 100 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.

1.   What is meant by distributed processing?

2.   Define the term tight coupling.

3.   List the advantages of distributed processing.

4.   What is meant by consistent state?

5.   Draw the designer's dilemma triangle.

6.   Define the term turpike effect.

7.   Mention the use of file server.

8. What is meant by horizontal distribution?

9. Define the term logical correlation.

10. List the reasons for using the distributed databases.

SECTION B — (5 × 4 = 20 marks)

Answer ALL questions.

11. (a) Discuss on circuit switching.

Or

(b) Write about functional partitioning using gateway processors.

12. (a) What are the reasons for using the distributed data?

Or

(b) What is meant by downline loading?

13. (a) Write about throughput.

Or

(b) What is meant by partitioning?

14. (a) Discuss on printer server.

Or

(b) Write a brief note on e-mail server.

15. (a) What is meant by vertical fragmentation?

Or

(b) Discuss on view management n $R *$ project.

SECTION C— (5 × 8 = 40 marks)

Answer ALL questions.

16. (a) Explain about the various Interconnection structures in networks.

Or

(b) Explain the approaches for designing a distributed computing system.

17. (a) Discuss about the distribution complexity and lock outs.

Or

(b) Explain how the distributed resources can be managed.

18. (a) Discuss on communication line loading.

Or

(b) Write about allocation.

19. (a) Explain in detail about file server.

Or

(b) Discuss the pros and cons of client server model.

20. (a) Explain the features of distributed versus centralized databases.

Or

(b) Explain how compilation, execution and recompilation of queries takes place in $R*$.

SECTION D — ($2 \times 10 = 20$ marks)

Answer ALL questions.

21. (a) Discuss in detail about the distributed databases.

Or

(b) Explain about the division of responsibilities.

22. (a) Discuss in detail about the distributed database management systems.

Or

(b) Explain about the various levels of distribution transparency.

_____

D 1065　　　　　　**Q.P. Code : [98 DMCA 58]**

(For the candidates admitted from 1998 to 2000)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

Third Year/Fifth Semester

Elective — ARTIFICIAL INTELLIGENCE AND
EXPERT SYSTEMS

Time : Three hours　　　　　　Maximum : 100 marks

Answer ALL the questions.

All questions carry equal marks.

SECTION A — (10 × 2 = 20 marks)

1.　Define heuristics.

2.　State the basic graph notations.

3.　What is the importance of searching?

4.　What is meant by a solution tree?

5.　Define syntax and semantics.

6.　What do you mean by ordered search?

7. State the various knowledge representation techniques.

8. Define the term Tacit knowledge.

9. What is meant by qualifier?

10. Narrate the difference between BFS and DFS.

SECTION B — (5 × 4 = 20 marks)

11. (a) Write about state space representation.

Or

(b) Explain abut AI technique with an example.

12. (a) Discuss in detail about AND/OR graphs with necessary diagrams.

Or

(b) Compare and contrast DFS and BFS.

13. (a) Write a note on problem reduction search methods.

Or

(b) Explain about minimum procedures.

14. (a) Discuss about automatic program writing.

Or

(b) Briefly write about the role of predicate calculus in problem solving.

15. (a) Explain the process of knowledge acquisition from an expert system.

Or

(b) Write note on various stages in expert system development.

SECTION C — (5 × 8 = 40 marks)

16. (a) Explain in detail about various graph notations.

Or

(b) Discuss about various AI techniques in problem solving.

17. (a) With neat example, explain about the Hill Climbing Problem in detail.

Or

(b) Write note on performance measures and optimality of Algorithms.

18. (a) Discuss in detail about Alpha beta cutoffs.

Or

(b) Briefly explain about the theorem proving in predicate calculus.

19. (a) Make a detail discussion on answer extraction process.

Or

(b) With neat examples explain abut proof finding methods in detail.

20. (a) Discuss in detail about knowledge acquisition process on knowledge engineering.

Or

(b) Make a brief discussion on automating knowledge acquisition.

SECTION D — (2 × 10 = 20 marks)

Answer ALL the questions.

21. (a) Explain in detail about various difficulties in developing an expert system.

Or

(b) Discuss in about detail the heuristic search with an example.

22. (a) Compare and contrast the breadth first and depth first with procedure and example.

Or

(b) Explain the A^K algorithm with an example.

—————

4 D 1065

D 1300   Q.P. Code : [01 DMCA 13]

(For the candidates admitted during 2001 and 2002 calendar year)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

First Semester

FOUNDATIONS OF COMPUTER SCIENCE

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

SECTION A — (20 × 1 = 20 marks)

1. What is a power set?

2. If $f : IR \rightarrow IR$ are defined by $f(x) = 2x + 5$ and $g(x) = \dfrac{1}{2}(x-5)$, show that f and g are inverses of each other.

3. Find the eigen values of $2A^2$, if $A = \begin{pmatrix} 4 & 1 \\ 3 & 2 \end{pmatrix}$.

4. State cayley Hamilton theorem.

5. A coin is tossed two times. Find the probability of getting atleast one tail.

6. A number is selected at random from 61 to 100. Find the probability that it is divisible by 5.

7. Define on FSM with an example.

8. Give two difference between deterministic and non-deterministic FSA's?

9. Define NAND connectives.

10. Show that $p \rightarrow (P \lor Q)$ is a tautology.

11. Show that $(P \land Q) \lor (P \land \overline{}Q) \Leftrightarrow P$.

12. Construct the truth table for the formula $(P \rightarrow Q) \land (\overline{}P \rightarrow Q)$.

13. The Solution to a transportation problem with m-sources and n-destinations is feasible if the number of allocations are —————.

14. In an assignment problem if there are n workers and n jobs there would be —————.

15. In an assignment problem, if the minimum number of lines covering all zeros in a reduced cost matrix of order n can be —————.

16. Simple method is an ————— process which involves the substitution of variables for obtaining successively better solutions.

17. State the order of convergence of Newton's Raphson Method.

18. In Gauss elimination method the coefficient matrix is transformed to —————form.

19. State Regula-Falsi formula.

20. If we start with zero values for x, y, z while solving equations $10x + y + z = 12$, $x + 10y + z = 12$, $x + y + 10z = 12$ by Gauss-Seidal iteration, the value for x, y, z after one iteration will be —————.

SECTION B — (5 × 4 = 20 marks)

21. (a) If $f, g : IR \rightarrow IR$ are defined by $f(x) = 2x + 5$ and $g(x) = \dfrac{x-5}{2}$. Show that f and g are inverses of each other.

Or

(b) Find the eigen values and eigen vectors of the matrix $\begin{pmatrix} 5 & 4 \\ 1 & 2 \end{pmatrix}$.

22. (a) A box contains 4 bad and 6 good tubes. Two are drawn out from the box at a time. One of them is tested and found to be good. What is the probability that the other one is also good?

Or

(b) Draw the state diagram of a FSA that accepts strings over (a, b) containing

    (i) exactly one b

    (ii) odd number of b's.

23. (a) Prove that $\{\neg, \wedge\}$ is a functionally complete set of connectives.

Or

(b) Find the PDNF and PCNF of $p \to (p \wedge (q \to p))$.

24. (a) What is an assignment problem? Explain.

Or

(b) Obtain all the basic solutions to the following system of linear equation:

$x_1 + 2x_2 + x_3 = 4$, $2x_1 + x_2 + 5x_3 = 5$.

4   D 1300

25. (a) Find the positive root of $x = \cos x$ by using Newton's Method.

Or

(b) Solve the system by Gauss-Elimination method.

$x + 2y + z = 3, 2x + 3y + 3z = 10, 3x - y + 2z = 13$.

SECTION C — (5 × 12 = 60 marks)

26. (a) Use Mathematical induction to show that $n < 2^{n-1}$ for $n = 1, 2, 3, \ldots$

Or

(b) Verify Cayley-Hamilton theorem for the matrix $A = \begin{pmatrix} 1 & 3 & 7 \\ 4 & 2 & 3 \\ 1 & 2 & 1 \end{pmatrix}$ and also use it to find A^{-1}.

27. (a) State and prove Baye's theorem.

Or

(b) Draw the state diagram of the DFA's equivalent to the following NFA's.

5   D 1300

28. (a) Using rule conditional proof show that :

$$(P \vee Q) \to R \Rightarrow (P \wedge Q) \to R.$$

Or

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

29. (a) Use simple method to solve the following LPP

Maximize $z = 4x_1 + 10x_2$

Subject to the conditions

$2x_1 + x_2 \leq 50$

$2x_1 + 5x_2 \leq 100$

$2x_1 + 3x_2 \leq 90$

$x_1 \geq 0$ and

$x_2 \geq 0.$

Or

(b) Solve the following assignment problems:

$$\begin{array}{c} & A & B & C & D \\ I & \begin{pmatrix} 1 & 4 & 6 & 3 \\ II & 9 & 7 & 10 & 9 \\ III & 4 & 5 & 11 & 7 \\ IV & 8 & 7 & 8 & 5 \end{pmatrix} \end{array}$$

30. (a) Assume that a root of $x^3 - 9x + 1 = 0$ lies in the interval $(2, 4)$ find that root by Bisection method.

Or

(b) Solve the following system of equations by Gauss-Seidal Method correct to three decimal places:

$x + y - 5z = 110$

$27x + 6y - z = 85$

$6x + 15y + 2z = 72.$

Reg. No. : ....

D 1066 Q.P. Code : [01 DMCA 14]

(For the candidates admitted from 2001 to 2004
calendar year)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

First Semester

ACCOUNTING AND FINANCIAL MANAGEMENT

Time : Three hours Maximum : 100 marks

SECTION A — (20 × 1 = 20 marks)

Answer ALL questions.

Fill in the blanks :

1. Recording of ——————— in a systematic manners is the first step in the accounting process.

2. Depreciation is a permanent ——————— in the value of an asset.

3. Working capital is the difference between current assets and current.

4. Funds means ——————— capital.

5. At break even point, total cost is equal to ———————

State True or False :

6. Analysis and Interpretation are closely related.

7. High Turnover ratios usually indicate managerial efficiency.

8. Decrease in current liabilities decreases working capital

9. Marginal costing is based on the Principle of" Variability of Cost".

10. A Standard cost is a " Pre-determined cost".

Match the following :

11. Out standing expenses is an example of   (a) Intangible asset

12. Goodwill is   (b) Credit worthiness

13. Solvency Ratio   (c) Liability

14. Standard Costing   (d) a Technique

15. Budget   (e) Cost Control Technique

2   D 1066

Answer the following.

16. Define Standard Costing.

17. What is a Budget?

18. What is working Capital?

19. What are the modes of expressing Ratio?

20. Give the examples of Current liability.

SECTION B — (5 × 4 = 20 marks)

Answer ALL questions.

21. (a) What are accounting concept and conventions? How are they evolved?

Or

(b) Explain the need for providing persecution.

22. (a) From the following balances prepare Trial Balance as on 31.12.2009

	Rs.
Capital	9,000
Plant and machinery	12,000
Purchases	8,000
Sales	12,000

3   D 1066

	Rs.
Sundry creditors	8,000
Bank Loan	22,000
Rent Outstanding	1,000
Opening Stock	2,000
Sales Returns	4,000
Investments	14,000
Debtors	12,000

Or

(b) From the following information you are required to find out.

(i) P.V. Ration

(ii) Break even point

(iii) Margin of safety

Sales (units)	15000
Fixed expenses	Rs. 34000
Sales	Rs. 150000
Variable use	Rs. 6 per unit

23. (a) Calculate funds from operation from the following profit and loss account Profit and Loss Account

	Rs.		Rs.
To Operation Expenses	1,00,000	By Gross Profit	2,00,000
To Depreciation	40,000	By Gain on sale	
To Loss on sale Building	10,000	of Plant	20,000
To Advertisement suspense a/c	5,000		
To Discount Allowed	500		
To Discount on Issue of Shares written off	500		
To Goodwill written off	12,000		
To Net Profit	52,000		
	2,20,000		2,20,000

Or

(b) From the following Trading and profit and loss a/c, you are required to ascertain cash from operations.

Trading and P & L a/c for the year ending 31.12.2009

Particulars	Rs.	Particulars	Rs.
To cost of goods sold	2,40,000	By sales	4,00,000
To gross profit c/d	1,60,000		
	4,00,000		4,00,000

Particulars	Rs.	Particulars	Rs.
To stationery	6,000	By gross	
To depreciation	14,000	profit b/d	1,60,000
To salaries	20,000		
To loss on sale			
of investments	2,000		
To rent of taxes	8,000		
To discount on issue of debentures	4,000		
To postage	3,000		
To provision for tax	20,000		
To proposed dividend	10,000		
To net profit	73,000		
	1,60,000		1,60,000

24. (a) Current – Ratio 2,5 working capital Rs. 63,000 Calculate current assets and current liabilities.

Or

(b) From the following details determine value of debtors

Total Sales to 500000

Debtors velocity 30 days

Cash sales Rs 2,00,000

Bills receivable Rs. 5,000.

25. (a) You are Required to prepare a production budget for the half year ending June 2000 from the following information

Product	Budget sales quantity	Actual stock on 31.12.99	Desired stock on 30.6.2000
	Units	Units	Units
A	20 000	4000	5000
B	50000	6000	10000

Or

(b) From the following data you are Required to calculate

(i) Material cost variance

(ii) Material Price variance

(iii) Material usage variance.

	Standard	Actual
Quantity	400 kgs.	460 kgs.
Prize	Rs. 2 per kg.	Rs. 1.5 per kg.
Value	Rs. 800	Rs. 690

SECTION C — (5 × 12 = 60 marks)

Answer ALL questions.

26. (a) Define Budget. What are the classifications of Budget?

Or

(b) The sales Turnover and Profit during the two periods were as follows.

Period	Sales (Rs.)	Profit (Rs.)
I	20,00,000	2,00,000
II	30,00,000	4,00,000

Calculate

(i) P/V Ratio

(ii) B.E. Sales

(iii) Sales required to earn a profit of Rs. 5,00,000

(iv) Profit when sales are Rs. 20,50,000

(v) Margin of safely in II period.

27. (a) Calculate labour variances from the following :

Standard Cost	Hours	Rate (Rs.)	Amount (Rs.)
Men	800	3	2,400
Women	200	2	400
	1,000		2,800

Actual Cost	Hours	Rate (Rs.)	Amount (Rs.)
Men	600	2.50	1,500
Women	500	2.00	1,000
	1,100		2,500

Or

(b) "Standard Costing is the most effective cost context system for manufacturing organizations." Explain the statement.

28. (a) Prepare a flexible for overheads in the basis of the following data. Ascertain the overhead rates at 50%, 60% and 70% Capacity.

	At 60% capacity
Variable overheads :	
Indirect material	6,000
Indirect labour	18,000
Semi-Variable overheads :	
Electricity (40% fixed 60% variable)	30,000
Repairs (80% fixed 20% variable)	3,000

Fixed overheads :

Depreciation	16,500
Insurance	4,500
Salaries	15,000
Total overheads	93,000
Estimated direct labour hours	1,86,000

Or

(b) Following are Ratios of a Trading Company :

Debtors Velocity	3 months
Creditors	2 months
Stock Velocity	8 months
Bills Payable	Rs. 4,000
Bills Receivable	Rs. 10,000
Total sales	Rs. 2,40,000

The Closing stock is Rs. 2000 more than the opening stock. Gross profit on the above sale is Rs. 40,000. These are to cash sales and cash purchases, and the accounting year consists of 360 working days. Find out.

(i) Sundry Debtors (ii) Sundry creditors (iii) Closing stock.

29. (a) From the following Balance sheets of X Ltd. make out

(i) Statement of Change in working capital (ii) Fund flow Statement. Balance Sheets.

Liabilities	Dec. 2003 Rs.	Dec. 2004 Rs.	Assets	Dec. 2003 Rs.	Dec. 2004 Rs.
Equity share capital	3,00,000	4,00,000	Goodwill	1,15,000	90,000
Redeemable preference share capital	1,50,000	1,00,000	Land & buildings	2,00,000	1,70,000
			Plant	80,000	2,00,000
General reserve	40,000	70,000	Debtors	1,60,000	2,00,000
Profit & loss	30,000	48,000	Stock	77,000	1,09,000
Proposed dividend	42,000	50,000	Bills receivable	20,000	30,000
Creditors	55,000	83,000	Cash in hand	15,000	10,000
Bills payable	20,000	16,000	Cash at bank	10,000	8,000
Provision for taxation	40,000	50,000			
	6,77,000	8,17,000		6,77,000	8,17,000

Additional Information :

(1) Depreciation of Rs 10,000 and Rs. 20,000 have been charged on plant and Land and Building respectively in 2004.

(2) A dividend of Rs, 20,000 has been paid in 2004.

(3) Income Tax of Rs. 35,000 has been paid during 2004.

Or

(b) The Balance sheets of a firm as on 31.12.2003 and 2004 are given below.

Liabilities	2003 (Rs.)	2004 (Rs.)	Assets	2003 (Rs.)	2004 (Rs.)
Share			Fixed Assets		
Capital	1,00,000	1,60,000	at Cost	1,52,000	2,00,000
Retained earning	70,250	85,300	Inventory	93,400	89,200
Accumulated			Debtors	30,800	21,100
Depreciation	60,000	40,000	Express		
12% debentures	50,000	–	prepaid	3,950	3,000
Sundry creditors	28,000	48,000	Bank	28,100	20,000
	3,08,250	3,33,300		3,08,250	3,33,300

The following additional information for 2004 are also given :

(i) Net Profit Rs. 27,050

(ii) Depreciation charged Rs 10,000

(iii) Cash Dividend declared during the period Rs. 12,000

(iv) An addition to the building was made during the year at a cost of Rs. 78,000 and fully depreciated equipment costing Rs. 30,000 was discarded as no salvage being realized prepare a cash flow statement.

30. (a) From the following Balances of Mr. X. prepare a Trading a/c profit and loss a/c and Balance sheet as at 3 1. Dec. 2009

Credit balances :

Capital	72,000
Creditors	17,440
Bills Payable	5,054
Sales	1,56,364
Loan	24,000
Bad debts	574
Interest	2,590
Insurance	834
Machinery	20,000
Stock (1.1.95)	19,890
Purchases	1,24,184

Debit Balances :

Debtors	8,000
Salaries	2,000
Discount	546
Wages	8,600
Buildings	47,560
Furniture	32,310

(i) Value of goods on 31 Dec. 2009 Rs. 28,600

(ii) Prepaid Insurance Rs. 300

(iii) Outstanding wages Rs. 600.

Or

(b) Briefly explain various methods of providing for depreciation of fixed assets.

———————

D 1566   Q.P. Code : [01 DMCA 21]

(For the candidates admitted during 2001 and 2002 calendar year)

M.C.A. DEGREE EXAMINATION, MAY 2010.

Second Semester

COMPUTER SYSTEM ARCHITECTURE

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

SECTION A — (20 × 1 = 20 marks)

1. Define instruction code.

2. What is the functionality of Accumulator?

3. Define effective address.

4. What are major types of control organization?

5. Define control word.

6. Expand RISC and CISC.

7. Define subroutines.

8. What is the difference between a microprocessor and a microprogram?

9. Expand ASCII.

10. Define interface.

11. Define handshaking.

12. What are three different modes used in data transmission?

13. What is multiprogramming?

14. Difference between RAM and ROM.

15. Define hit ratio.

16. What is an Associative memory?

17. What is DMA?

18. Define cache memory.

19. Define SIMD.

20. What is the use of super computer?

SECTION B — (5 × 4 = 20 marks)

21. (a) Draw the block diagram of control unit of computer.

Or

(b) Give two applications of three-Address instructions.

2   D 1566

22. (a) Explain multiplication algorithm.

Or

(b) Write an algorithm for adding numbers in signed 2's complement representation.

23. (a) Write short notes on Perpheral devices.

Or

(b) Write short notes on I/O interfaces.

24. (a) Briefly explain various semiconductors.

Or

(b) Write short notes on ROM, PROM.

25. (a) Briefly explain any two Flynn's classification of computers.

Or

(b) Write short notes on vector processing.

SECTION C — (5 × 12 = 60 marks)

26. (a) Explain the different components of instruction cycle.

Or

(b) Discuss various addressing modes used in computers.

3 ·   D 1566

27. (a) Formulate the sequence of internal operations which are required to implement the call and return from subroutine microinstructions.

Or

(b) Draw a block diagram of sequences.

28. (a) Explain DMA with neat diagram.

Or

(b) Discuss in detail how synchronous and asynchronous Data Transfer Works.

29. (a) Explain the concept of virtual memory in detail.

Or

(b) Explain the concept of Bubble memory in detail.

30. (a) Briefly discuss about classification of computer system with an examples.

Or

(b) With a neat diagram explain the concept of instruction pipeline.

———————

D 1067   Q.P. Code : [01 DMCA 22]

(For the candidates admitted from 2001 to 2004
calendar year)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

Second Semester

DESIGN AND ANALYSIS OF ALGORITHMS

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

All questions carry equal marks.

SECTION A — (20 × 1 = 20 marks)

1. An algorithm consists of a beading and a
    ——————————.

2. Performance measurement is concerned with
    obtaining the —————— and ——————
    requirements of a particular algorithm.

3. The worst case time complexity of the merge sort
    algorithm is ——————————.

4. The size of the submatrices in the strassen's
    matrix multiplication is ——————————.

5. Any subset that satisfies the constraints is called ———————— solution.

6. The computing time of the fast job scheduling algorithm is ————————.

7. Define the term minimum cost spanning tree.

8. Any shortest path algorithm must examine each edge in the graph ————————.

9. Give the use of dynamic programming.

10. An example for a multistage problem is ————————.

11. Every empty subtree nodes in an optimal binary search trees are called ————————.

12. What is meant by 0/1 knapsack?

13. Give the use of traversal methods.

14. Spanning trees obtained using Breadth First search are called ————————.

15. Mention the use of AND/OR graphs.

16. List the use of a game tree.

17. There are ———————— categories of constraints in a problem.

18. Define the sum of subsets problem.

19. What is meant by a planar graph?

20. List an application of branch and bound technique.

SECTION B — (5 × 4 = 20 marks)

21. (a) Discuss on the characteristics of an algorithm.

Or

(b) Write an algorithm for iterative binary search.

22. (a) Write a brief note on General Greedy Method.

Or

(b) Discuss on optimal storage on tapes.

23. (a) Write about Multistage graphs.

Or

(b) Discuss briefly about travelling salesperson problem.

24. (a) Write short notes on depth first search.

Or

(b) Write about AND/OR graphs.

25. (a) Write and explain the steps followed in Backtracking.

Or

(b) Discuss on Graph coloring.

SECTION C — (5 × 12 = 60 marks)

26. (a) Discuss in detail about the mergesort algorithm and apply it to the set containing the elements.

[310, 285, 179, 667, 361, 423, 891, 254, 460, 520]

Or

(b) Explain in detail about Strassen's matrix multiplication algorithm. Also find the overall computing time.

27. (a) Explain the Greedy procedure for Knapsack problem.

Or

(b) Discuss about Job sequencing with deadlines.

28. (a) Explain in detail about all pairs shortest path problem.

Or

(b) Explain the following :

(i) Optimal binary search trees. (6)

(ii) Flow shop scheduling. (6)

29. (a) Discuss in detail about breadth first search for a graph.

Or

(b) Explain about Game trees.

30. (a) Explain in detail about sum of subsets problem.

Or

(b) Discuss about branch and bound technique.

D 1068   Q.P. Code : [01 DMCA 23]

(For the candidates admitted from 2001 to 2004
calender year)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

Second Semester

RELATIONAL DATABASE MANAGEMENT
SYSTEMS

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

SECTION A — (20 × 1 = 20 marks)

1.   List any two disadvantages of file processing systems.

2.   Define the term data model,

3.   Name any two database languages.

4.   Who is sophisticated user?

5.   Define the term relationship.

6.   What is meant by specialization?

7.   DBTG stands for ——————————.

8. IMS stands for ——————.

9. What do you mean by database schema?

10. Give the difference between strong entity set and weak entity set.

11. Define the term domain relational calculus.

12. Tuple relational calculus is a —————— language.

13. Name the two types of ordered indices.

14. Mention the steps involved in processing a query.

15. List the models in which a data item can be locked.

16. Define deadlock.

17. Mention the use of Data mining.

18. What do you mean by Data ware housing?

19. OLAP stands for ——————.

20. Give any two applications of temporal databases

SECTION B — (5 × 4 = 20 marks).

21. (a) Discuss on purpose of database systems.

Or

(b) Write a brief note on DBA.

22. (a) Discuss briefly on constraints.

Or

(b) Write about Network model.

23. (a) Write a note on domain relational calculus.

Or

(b) Discuss about integrity constraints.

24. (a) Discuss on indexing.

Or

(b) Write about security.

25. (a) List the advantages and disadvantages of distributed databases.

Or

(b) Discuss on data mining.

SECTION C — (5 × 12 = 60 marks)

26. (a) Explain the following :
    (i) Data models (6)
    (ii) Database users. (6)

    Or

    (b) Discuss the following :
    (i) Transaction management (6)
    (ii) System structure (6)

27. (a) Explain in detail about E-R model

    Or

    (b) Discuss about Hierarchical model.

28. (a) Explain in detail about relational algebra.

    Or

    (b) Discuss in detail about relational commercial languages.

29. (a) Discuss about query processing.

    Or

    (b) Explain concurrency control.

30. (a) Explain about any one advanced database system.

    Or

    (b) Discuss about KDD process.

D 1069   **Q.P. Code : [01 DMCA 31]**

(For the candidates admitted from 2001 to 2004
Calendar Year)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

Third Semester

SOFTWARE ENGINEERING

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

SECTION A — (20 × 1 = 20 marks)

1. Mention the name of the software components.

2. Give any two example for system software.

3. What is real-time software?

4. Define software engineering.

5. ——————— is a process of discovery, refinement, modeling and specification.

6. List any two principles of analysis methods.

7. Software applications can be collectively called ———————.

8. Software design activity is divided into ——————— and ——————— phases.

9. _____ is the first activity in software project planning.

10. What is software design process?

11. What is abstraction?

12. Define functional independence.

13. What is mean by coupling?

14. JSD means _____.

15. RTOS stands for _____.

16. State the definition for 'loosely coupled'.

17. List the types of software testing.

18. What is flow graph?

19. _____ is used to test the internals of the system.

20. What is unit testing?

SECTION B — (5 × 4 = 20 marks)

21. (a) Write short note on software characteristics.

Or

(b) Briefly discuss a generic view of software engineering.

22. (a) What is requirement analysis? Explain.

Or

(b) Discuss software prototyping in detail.

23. (a) Explain control hierarchy.

Or

(b) What is functional independence? Explain.

24. (a) Distinguish between architectural design and procedural design.

Or

(b) Describe analysis and simulation of real time systems.

25. (a) Explain basic path testing.

Or

(b) Explain the issues to be addressed for implementing successful software testing.

SECTION C — (5 × 12 = 60 marks)

26. (a) Explain various phases of SDLC and identify outputs at each phase.

Or

(b) Describe evolutionary software process model.

2 D 1069

3 D 1069

27. (a) What are the different types of cohesion? Explain with examples.

Or

(b) Discuss the process and product metrics in detail.

28. (a) Describe the structure of software requirements specification documents and explain clearly the standard to be followed.

Or

(b) Why software architecture is important? Explain in detail the taxonomy of architectural styles and guidelines for architectural design.

29. (a) What is real time system? Write the characteristics of a real time system.

Or

(b) Explain transform mapping and transaction mapping in detail.

30. (a) Discuss a strategic approach to software testing.

Or

(b) Explain unit testing and integration testing with example.

4

D 1070   **Q.P. Code : [01 DMCA 32]**

(For the candidates admitted from 2001 to 2004
calendar year)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

Third Semester

OPERATING SYSTEMS

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

SECTION A — (20 × 1 = 20 marks)

1.   What is protection?

2.   Define multiprogramming.

3.   Define mutual exclusion.

4.   What is scheduling?

5.   Define deadlocks.

6.   What is use of spooling?

7.   Define dispatch latency.

8. What is recovery?

9. What is disk scheduling?

10. Define Thrashing.

11. Define System mounting.

12. Define sector queuing.

13. What is a shell?

14. Write any two concepts of UNIX.

15. What are the components of Linux?

16. Define paging.

17. What is a virtual memory?

18. Write any two difference between DOS and UNIX.

19. What is an overlay?

20. Write a difference between windows and windows NT.

SECTION B — (5 × 4 = 20 marks)

21. (a) Explain semaphores with example.

Or

(b) Explain multiprogramming and time sharing with example.

22. (a) Explain the Banker's algorithm for deadlock avoidance.

Or

(b) Explain any one scheduling algorithm with example.

23. (a) Explain paged memory management.

Or

(b) Explain any one page replacement algorithm.

24. (a) Discuss any two disk scheduling algorithms.

Or

(b) Explain the file allocation methods.

25. (a) Explain the various operations of UNIX.

Or

(b) Describe the MS-DOS system structure with a neat diagram.

SECTION C — (5 × 12 = 60 marks)

26. (a) Explain Interprocess communication with example.

Or

(b) Explain critical section problem.

27. (a) Explain deadlock detection and recovery.

Or

(b) Explain the multiple processor scheduling.

28. (a) Explain multiple partition memory management.

Or

(b) Explain segmentation with a neat diagram.

29. (a) Describe the concepts involved in maintaining the file system security.

Or

(b) Explain the various file operations.

30. (a) Explain the merits and demerits of UNIX and DOS.

Or

(b) Discuss the Linux inteprocess communication in detail.

———————

D 1071   Q.P. Code : [01 DMCA 33]

(For the candidates admitted from 2001 to 2002
calendar year)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

Third Semester

OBJECT ORIENTED SYSTEM DESIGN

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

SECTION A — (20 × 1 = 20 marks)

1.   Define a class.

2.   What is an object? Give an example.

3.   Write the elements of object model.

4.   Define encapsulation.

5.   What is a classification.

6.   Define abstraction.

7.   What is UML?

8.   Define Clustering.

9. Define refactoring.

10. What is a risk?

11. What is an instance?

12. What is a pattern?

13. Define object diagram.

14. Define Pre-condition.

15. What is a guard?

16. Define state diagram.

17. Define class diagram.

18. What represent physical module of code?

19. Define Interaction diagram.

20. Write the difference between activity diagram and package diagram.

SECTION B — (5 × 4 = 20 marks)

21. (a) Explain the role of an object in a class.

Or

(b) How an object model is defined? Explain.

22. (a) Explain the interplay of classes and objects.

Or

(b) Explain the importance of prope classification.

23. (a) Explain the requirements of analysis.

Or

(b) Write short note on patterns.

24. (a) Describe the associations of class diagram.

Or

(b) Explain meta–models and notations.

25. (a) Explain state diagram in detail.

Or

(b) Explain UML and programming.

SECTION C — (5 × 12 = 60 marks)

26. (a) Discuss about relationship among objects.

Or

(b) Explain the evaluation of the object model.

27. (a) Explain the relationship among classes.

Or

(b) How you build equality classes and objects.

28. (a) Discuss about elaboration.

Or

(b) Explain refactoring and transmission.

29. (a) Explain class diagram with an example.

Or

(b) Discuss any two types of classes.

30. (a) Explain about sequence diagram and collaboration diagram.

Or

(b) Explain component diagram and activity diagram.

———————

D 1072   Q.P. Code : [01 DMCA 34]

(For the candidates admitted from 2001 to 2004
Calendar Year)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

Third Semester

COMPUTER NETWORKS

Time : Three hours   Maximum : 100 marks

SECTION A — (20 × 1 = 20 marks)

Answer ALL questions.

All questions carry equal marks.

1. What is ARPA net?

2. Expand ISDN.

3. Why we need satelite communication?

4. What is synchronization?

5. What is token management?

6. Define high speed LAN.

7. What is a protocol?

8. What is the use of error detection?

9. Define CSMA/CD format.

10. Define topology.

11. What is a packet?

12. Define connectionless service in internet.

13. Define network security.

14. What is a layer?

15. Expand ATM.

16. What is an electronic mail?

17. Define multimedia.

18. Define congestion control.

19. What are transmission media?

20. What is the general name for syntax layer?

SECTION B — (5 × 4 = 20 marks)

Answer ALL questions.

All questions carry equal marks.

21. (a) Describe the different modes of operation in Fiber Optics.

Or

(b) Explain wireless transmission.

22. (a) Explain character stuffing and Bit stuffing in detail.

Or

(b) Explain sliding window protocol.

23. (a) Explain segmentation in detail.

Or

(b) Write the role of network layer in internet.

24. (a) Discuss about UDP.

Or

(b) Write a short note on performance issues of transport protocols.

25. (a) Explain RSA algorithm.

Or

(b) Describe about the types of data compression.

SECTION C — (5 × 12 = 60 marks)

Answer ALL questions.

All questions carry equal marks.

26. (a) Briefly explain about the architecture of ISDN in detail.

Or

(b) Discuss OSI reference model.

27. (a) Explain stop and waft protocol in detail.

Or

(b) Explain sliding window protocol.

28. (a) Discuss any two routing algorithms in detail.

Or

(b) Explain Network layer issues.

29. (a) Explain the working flow of TCP protocol.

Or

(b) Explain the role of transport protocol in internet.

30. (a) Explain simple Network management protocol.

Or

(b) Explain the architecture of SNMP model in detail.

———————

Reg. No. : ....

D 1073   Q.P. Code : [01 DMCA 35]

(For the candidates admitted during 2001 & 2002
Calendar year)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

Third Semester

MULTIMEDIA SYSTEMS

Time : Three hours   Maximum : 100 marks

SECTION A — (20 × 1 = 20 marks)

Answer ALL questions.

1. Define Multimedia.

2. Mention the basic system components for running multimedia applications.

3. What is meant by cross platform compatibility?

4. Mention any two commercial tool for developing multimedia.

5. Differentiate temporal and non-temporal media types.

6. Mention the file formats used for representing audio.

7. How digital media is different from analog media?

8. What is animation?

9. What is the advantage of image compression?

10. Define the term visibility.

11. Expand JPEG.

12. Expand DVI.

13. Define Object.

14. Mention the major features of object oriented multimedia.

15. What is meant by the term reusability in object oriented multimedia.

16. What is inheritance?

17. What is RAID?

18. Mention the devices used for multimedia storage.

19. Mention any two applications of multimedia on networks.

20. What is POI system?

SECTION B — (5 × 4 = 20 marks)

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

21. (a) Briefly explain the need for multimedia.

Or

(b) Discuss in brief about multimedia development tools.

22. (a) Briefly explain the role of animation in multimedia.

Or

(b) Write brief note on extended images.

23. (a) How to evaluate a compression system? Explain briefly.

Or

(b) Discuss in brief about MPEG standard.

24. (a) Briefly explain the benefits of object oriented multimedia.

Or

(b) Write short notes on media classes.

25. (a) Briefly explain the optical media for multimedia storage.

Or

(b) How multimedia is effective in single user system? Explain briefly.

SECTION C — (5 × 12 = 60 marks)

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

26. (a) Explain multimedia technology in detail.

Or

(b) Explain the following in detail.

(i) Multimedia platforms

(ii) Multimedia standards

27. (a) Explain non-temporal mediatypes of multimedia in detail.

Or

(b) Write notes on

(i) Digital audio/video

(ii) Animation.

28. (a) Write notes on video compression techniques.

Or

(b) Explain JPEG image compression standard in detail.

29. (a) Discuss about object oriented multimedia framework.

Or

(b) Explain the following in detail with respect to object oriented multimedia.

(i) Format classes

(ii) Component classes

30. (a) Explain CD ad CD-i technology in detail compare them in terms of multimedia storage.

Or

(b) Explain the applications of multimedia with illustrations in the field of training and education.

———————————

D 1074   Q.P. Code : [01 DMCA 41]

(For the candidates admitted from 2001 to 2004
calendar year)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

Fourth Semester

VISUAL PROGRAMMING

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

SECTION A — (20 × 1 = 20 marks)

1. What is GUI?

2. Define Loop.

3. What is a dialog Box?

4. What is the use of clipboard?

5. Define variables in VB.

6. What is a string?

7. Define Text Box.

8. What is a label?

9. What is a Rich Text Box?

10. Define desk checking.

11. Define "Data Grid".

12. Expand OLE.

13. What is DDE event?

14. Expand DAO.

15. Differentiate Bitmaps from Icons.

16. What is a Cfile?

17. Expand ODBC.

18. Define synchronization.

19. What is Cthread?

20. Define Cevent.

SECTION B — (5 × 4 = 20 marks)

21. (a) Explain the architecture of windows programming.

Or

(b) Write short notes on.

(i) DDE

(ii) DLL

(iii) OLE-COM

(iv) Windows registry.

22. (a) Explain financial and numerical functic in VB.

Or

(b) How you design a form in VB? Explain.

23. (a) Explain the various user defined functio and modules in VB.

Or

(b) Explain the various Active X controls in VE

24. (a) Explain MFC class hierarchy in detail.

Or

(b) Explain any four List Box Properties.

25. (a) Discuss AFX functions in VC++.

Or

(b) Explain any two synchronization classes VC++.

SECTION C — (5 × 12 = 60 marks)

26. (a) Explain the concept of object oriented linkir and embedding.

Or

(b) Explain the GDI tools in detail.

27. (a) Explain printer dialog box with example.

Or

(b) Describe single document interface.

28. (a) Explain object properties in VC++.

Or

(b) Explain Database access controls in detail.

29. (a) Explain the various resources in VC++.

Or

(b) Write a short note on :

(i) APPWIZARD

(ii) Class WIZARD.

30. (a) Explain the procedures for document creation and edition using VC++.

Or

(b) Explain database applications with multiple document usage.

D 1075   Q.P. Code : [01 DMCA 42]

(For the candidates admitted from 2001 to 2004
Calendar Year)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

Fourth Semester

SOFTWARE PROJECT AND MANAGEMENT

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (20 × 1 = 20 marks)

1. One way of perceiving software project management is as the process of making visible that which is invisible – Say True / False.

2. _____ might have some control over the organizational structure of the project team.

3. Requirements analysis is finding out in detail what the users require of the system that the project is to implement – Say True / False.

4. Cost – benefit analysis consists of _____ steps.

5. Resource allocation is one of the objectives of activity planning – Say True / False.

6. _____ study ascertains that the benefits of the potential system will justify the costs.

7. What is the first step in producing a project plan?

8. What is the first stage in creating a network model?

9. A ——————— is something that may or may not happen.

10. Risk exposure = ——————— × risk impact.

11. The ——————— path identifies those activities which are critical to the end date of the project.

12. Some risks will be dependent on others – Say True / False.

13. ——————— schedule indicates the planned start and completion dates for each activity.

14. To improve motivation the manager might set specific goals – Say True / False.

15. What is risk shift?

16. Define : Process oriented system.

17. What are the uses of PERT?

18. PRINCE stands for ———————.

19. PRINCE identifies roles rather than jobs. – Say True / False.

20. What is the function of Configuration Manager?

PART B — (5 × 4 = 20 marks)

21. (a) Explain the problems with software projec

Or

(b) Discuss "Software project Vs Managem skills".

22. (a) List out the various phases of softwa estimation.

Or

(b) What are the objectives of activity plannin

23. (a) Highlight the features of "organisati behaviour" needed for team projects in system.

Or

(b) Write short notes on : Monte Car Simulation.

24. (a) State the responsibilities of SCM.

Or

(b) What are various classifications prototyping?

25. (a) Explain the components of PRINCE 2.

Or

(b) Explain the PRINCE planning technique.

PART C — (5 × 12 = 60 marks)

26. (a) Explain in detail about cost-benefit analysis.

Or

(b) Explain in detail various process models.

27. (a) Explain in detail about formulating a network model.

Or

(b) Explain what do you mean by a project and its activities.

28. (a) Explain in detail about Hazard analysis.

Or

(b) Explain in detail about evaluating risks to the schedule.

29. (a) Write short notes on :

(i) Software prototyping.

(ii) Models of prototyping.

Or

(b) Explain with example about basic functions and standards of software configuration management.

30. (a) Explain the problems with student projects.

Or

(b) Explain the major processes in PRINCE 2.

Reg. No. : ....

D 1576   Q.P. Code : [01 DMCA 43]

(For the candidates admitted during 2001 and 2002
calendar year)

M.C.A. DEGREE EXAMINATION, MAY 2010 DEC 2010

Fourth Semester

NETWORK MANAGEMENT AND ADMINISTRATION

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

All questions carry equal marks.

PART A — (20 × 1 = 20 marks)

1. Mention the requirements of network
    management.

2. Define MAN.

3. Expand WAN.

4. Define Co-existence.

5. What is transport mappings?

6. Name any two macros that are defined in the conformation statement.

7. Define Protocols.

8. What is protocol interaction?

9. What is the objective of fault monitoring?

10. What is Account monitoring?

11. What is management information?

12. Name any two functions included in the configuration management.

13. Define standard MIB.

14. Define SNMP.

15. Define SNMP V2 MIB.

16. What is alarm group in RMON?

17. What is the use of filters?

18. Define TCP.

19. What are the objects that are added in extension to RMON1 for RMON2 devices?

20. What is the use of RMON2 devices?

PART B — (5 × 4 = 20 marks)

21. (a) Write briefly about conformance statement.

Or

(b) Write short note on security management in network management.

22. (a) Write short notes on protocol interaction.

Or

(b) Write briefly about proxy agent behaviour.

23. (a) Write short notes on performance monitoring.

Or

(b) Write a brief note on configuration control.

24. (a) Write a short notes on standard MIB's.

Or

(b) Write short notes on transmission of an SNMP message.

25. (a) Explain configuration in control of remote monitors.

Or

(b) Write briefly about statistics collection.

PART C — (5 × 12 = 60 marks)

26. (a) Discuss in detail the MIB models.

Or

(b) Write in detail about the structure of management information.

27. (a) Explain in detail the network management assignments.

Or

(b) Discuss in detail about co-existence.

28. (a) Explain in detail the fault monitoring of networks.

Or

(b) Explain in detail the various types of threats.

29. (a) Write a detailed note on management Information Protocols.

Or

(b) Explain in detail about management information base in SNMPV2.

30. (a) Write a detailed note on Remote network monitoring.

Or

(b) Explain in detail about table management in RMON.

———————

4   D 1576

D 1076   Q.P. Code : [01 DMCA 44]

(For the candidates admitted from
2001 to 2004 calendar year)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

Fourth Semester

Elective — E-COMMERCE

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

SECTION A — (20 × 1 = 20 marks)

Give short answer (1–10) :

1.   Define : I-way.

2.   What are the elements of a e-commerce applications?

3.   What is hypertext.

4.   Give an example for URL.

5.   Specify any one of the user agents issue.

6.   Expand the term OLAP.

7. Give an example for on-line pull-based advertising.

8. What are the goals of e-commerce?

9. Define : multiprocessing.

10. Mention any one of the characteristics of CD-ROM.

Fill in the blanks (11–20) :

11. ———————— are used to connect LANs and WANs.

12. E-commerce is defined as ————————.

13. ———————— are also called as 'healthy viruses'.

14. In distributed systems, the messages are treated as ————————, that pass between systems.

15. A ———————— is a network of suppliers and customers.

16. TIFF stands for ————————

17. Interactive catalogs are suited for ———————— business.

18. VRML is a specification for adding 3D data to ————————.

19. CU-seeme is a ———————— program.

20. MBONE stands for ————————.

SECTION B — (5 × 4 = 20 marks)

21. (a) Describe the stages in internet growth.

Or

(b) Discuss about internet connectivity options

22. (a) Explain the WWW-based security schemes

Or

(b) Elaborate the digital token-based e-payme systems.

23. (a) Describe the legal and security issues relat to EDI.

Or

(b) List and explain the factors that make t internet useful for EDI.

24. (a) Explain the usage of e-commerce catalogs.

Or

(b) What are the characteristics of softwa agents? Explain.

25. (a) Write a note on frame relay.

Or

(b) Explain the features of SGML.

26. (a) What are the components of I-way? Explain.

Or

(b) Describe the e-commerce organization applications.

27. (a) Discuss about data and message security.

Or

(b) Explain the mercantile models from the consumer's perspective.

28. (a) Elaborate the issues related with work-flow automation and co-ordination.

Or

(b) What are the types of digital document? Explain in detail.

29. (a) Discuss the important aspects associated with advertising on the internet.

Or

(b) Explain the technology behind software agents.

30. (a) Describe the features of mobile TCP/IP based networking.

Or

(b) Explain the concept of desktop video conferencing.

Reg. No. : ....

D 1077   Q.P. Code : [01 DMCA 45]

(For the candidates admitted from 2001–2002
calender year)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

Fourth Semester

Elective — MICROPROCESSOR AND ASSEMBLY
LANGUAGE PROGRAMMING

Time : Three hours   Maximum : 100 marks

PART A — (20 × 1 = 20 marks)

Answer ALL questions.

Each question carries equal marks.

1. In specifying a microprocessor as n-bit processor,
    the value of n refers to

    (a) Width of address bus

    (b) Width of data bus

    (c) Width of control bus

    (d) Length of an instruction.

2. 80286 is a ———————————— bit processor

    (a) 4   (b) 8

    (c) 16   (d) 32.

3. One of the following processor has a built-in coprocessor

   (a) 8086
   (b) 80286
   (c) 80386
   (d) 80486.

4. The number of flags in a 8088 processor is

   (a) 10
   (b) 9
   (c) 8
   (d) 7.

5. The addressing mode involved in the instruction MOV [BX]+OFFSET, AL is

   (a) Direct
   (b) Indirect
   (c) Based
   (d) Based-indexed.

6. The processor that has the superscalar architecture is

   (a) 8088
   (b) 8086
   (c) 80486
   (d) Pentium.

7. The term XT in PC/XT refers to

   (a) Extraordinary technology
   (b) Extended technology
   (c) Extra time
   (d) Express technology.

8. L2 cache is a built-in feature in

   (a) 80386
   (b) 80486
   (c) Pentium
   (d) Pentium II.

9. The _____ directive assigns an expression to an identifier in assemblers

   (a) ORG
   (b) EQU
   (c) LABEL
   (d) MACRO.

10. The cbw instruction refers to

    (a) Call if borrow
    (b) Call if not borrow
    (c) Convert byte to word
    (d) Conditional branch word.

11. Bitwise logical comparison can be done using the instruction

    (a) lea
    (b) sti
    (c) test
    (d) cmp.

12. The procedures residing in a same segment is generally referred as

    (a) Inter-segment
    (b) Intra-segment
    (c) Nested-segment
    (d) Near-segment.

13. The function chosen in invoking an interrupt done through —————————— register

   (a) AL   (b) AX

   (c) AH   (d) DS.

14. —————————— instruction is used to invoke a software interrupt

   (a) test   (b) sti

   (c) int   (d) ret.

15. The interrupt type number —————————— has functions for I/O and file operations

   (a) 11   (b) 21

   (c) 31   (d) 41.

16. Function number —————————— of DOS interrupt is used to perform I/O on parallel port

   (a) 2   (b) 3

   (c) 4   (d) 5.

17. Labels are added to a symbol table in —————————— pass of two pass assembly

   (a) One   (b) Two

   (c) Both   (d) None.

18. Bootstrapper is a part of

   (a) DOS   (b) BIOS

   (c) POST   (d) INT.

19. A floating point number represented in IEEE single precision format is —————————— bytes long

   (a) 4   (b) 8

   (c) 16   (d) 24.

20. The width of floating point registers in 8087 is —————————— bits

   (a) 30   (b) 60

   (c) 80   (d) 90.

PART B — (5 × 4 = 20 marks)

Answer ALL questions.

Each Question carries equal marks.

21. (a) List and explain the uses of index registers available in 8088.

   Or

   (b) Show how an effective addressed is calculated in 8088 processor.

22. (a) Distinguish between PC, PC/XT and PC/AT technologies.

   Or

   (b) Give any four differences between the processors 8088 and 80386.

23. (a) Mention an advantage and a disadvantage of using macros.

Or

(b) How is a logical shift operation different from arithmetic shift operation?

24. (a) What are DOS interrupts? Are they hardware triggered inputs?

Or

(b) Give the usage of IN and OUT instructions.

25. (a) How does conditional assembly help in macro programming?

Or

(b) What are mantissa and exponents in floating point representations?

PART C — (5 × 12 = 60 marks)

Answer ALL questions.

Each question carries equal marks.

26. (a) Enumerate and describe the evolution of processors comparing their architectural and programming features. (12)

Or

(b) Describe the architectural features of 8088 processor with a neat sketch of a functional block diagram. (12)

6   D 1077

27. (a) (i) Explain the role of BIOS in PC systems. (6)

(ii) What is the typical information given in a system configuration? Give a suitable example. (6)

Or

(b) With a neat sketch of functional block diagram explain the various subsystems of a PC architecture. (12)

28. (a) Write an assembly language program to reverse a string of characters. Supplement the program with sufficient in-line comments. (12)

Or

(b) Write an assembly language program to recursively call a subroutine to generate a Fibonacci series upto a given limit. (12)

29. (a) Describe with suitable examples for the usage of DOS interrupts for the following file handles: seek, open, read, write and append. (12)

Or

7   D 1077

(b) (i) Explain the available I/O space and their typical use in a PC architecture. (6)

(ii) Give examples for DOS interrupts to perform I/O transfer on a parallel port. (6)

30. (a) Write an assembly language program using macros to convert a string of ASCII characters to their equivalent hexa-decimal values. (12)

Or

(b) Write an assembly language program to evaluate (A/B)*C² where A, B, and C are floating point numbers. (12)

D 1078   Q.P. Code : [01 DMCA 5]

(For the candidates admitted during
2001-2002 calendar year)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

Fifth

INTERNET PROGRAMMING AND WEB DESIGN

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

All questions carry equal marks.

PART A — (20 × 1 = 20 marks)

1.   Define the term Intranet.

2.   WWW stands for ——————

3.   What is meant by encryption?

4.   Define the term web page.

5.   List the Internet Scripting languages.

6.   Mentioon the use of perl.

7. List the control structures in Javascript.

8. Name the data types in Visual Basic Script.

9. SGML stands for ——————

10. Give the use of ,<BR.> tag.

11. Pulling web information is also called as ——————

12. Give the use of ActiveX control.

13. Define the term site map.

14. What is meant by hyperlink?

15. Give the use of MAIL to link.

16. What is the use of WWW?

17. Mention the use of WWW.

18. Name the web page browsers.

19. Mention the use of lists.

20. DHTML stands for ——————

PART B — (5 × 4 = 20 marks)

21. (a) Write a brief note on Internet.

Or

(b) Discuss on Encryption in internet.

22. (a) Write a note on CGI.

Or

(b) Discuss on multithreading in Java.

23. (a) Write about HTML.

Or

(b) Discuss on Netscape extensions.

24. (a) Write about Images.

Or

(b) Discuss on frames.

25. (a) Write a brief note on the structure of WWW

Or

(b) Discuss on Tables.

PART C — (5 × 12 = 60 marks)

26. (a) Explain in detail about Web Design issues.

Or

(b) Write short notes on :

(i) Security

(ii) Intranet.

27. (a) Discuss in detail about Applet Programming in Java.

Or

(b) Explain with a example the event handling in Visual Basic Script.

28. (a) Discuss the following :

   (i) Perl (6)

   (ii) SGML (6)

Or

(b) Explain how a custom and integrated application can be created with multiple protocols.

29. (a) Discuss about web graphics and dynamic graphics.

Or

(b) What is meant by animation? Explain their types and applications.

30. (a) Explain in detail about the design tools for Web.

Or

(b) Discuss about DHTML.

Reg. No. : ....

D 1301   Q.P. Code : [01 DMCA 52]

(For the candidates admitted during 2001 and 2002
Calendar year)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

Fifth Semester

PRINCIPLES OF MARKETING AND MANAGEMENT

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

All questions carry equal marks.

SECTION A — (20 × 1 = 20 marks)

Fill in the blanks :

1. ———————— is called as the Father of Scientific Management.

2. ———————— is concerned with the sequence of production operations.

3. ———————— is the structural framework within the various efforts are coordinated and related to each other.

4. The Acceptance Theory was developed by _____.

5. Vroom developed a theory on motivation called the _____.

6. The expansion of PERT is _____.

7. Modern marketing is _____ oriented.

8. The total number of products produced by a manufacturer is called as _____.

9. _____ links producer and consumer.

10. Data collected from the records is called as _____.

State whether the following statements are True or False :

11. Management is what a manager does?

12. Staffing is one of the functions of management.

13. A Paternalistic leader takes care of his followers in the way the head of a family takes care of the family members.

14. Marketing and selling are one and the same.

15. In Marketing Research, data are collected by the consumers.

Match the following :

16. Hendry Fayol   (a) Theory X and Theory Y

17. Douglas McGregor   (b) Availability of the product

18. SWOT analysis   (c) Principles of Management

19. Production Concept   (d) Quality of the product

20. Product Concept   (e) Control Technique

SECTION B — (5 × 4 = 20 marks)

21. (a) What are the functions of management?

Or

(b) What are the steps in planning?

22. (a) What are the bases of departmentation?

Or

(b) Enumerate the sources of recruitment.

23. (a) Describe 'Maslow's Theory' of motivation.

Or

(b) Explain the advantages of Budgetary control.

24. (a) What is Market segmentation? Mention the various bases of segmentation.

Or

(b) What are the functions of packaging?

25. (a) What are the objectives of pricing?

Or

(b) What are the qualities required for a good salesman?

SECTION C — (5 × 12 = 60 marks)

26. (a) Explain the various types of plans.

Or

(b) What is MBO? Explain the characteristics of objectives.

27. (a) How do you select an employee for your organisation?

Or

(b) Explain the various methods of training.

28. (a) What are the barriers to communication? Suggest measures to overcome the same.

Or

(b) Explain the principles of direction.

29. (a) What are the functions of marketing?

Or

(b) Explain the stages involved in the development of a new product.

30. (a) Describe the sales promotion techniques for consumers and middlemen.

Or

(b) Explain the steps in the personal selling process.

———————

D 1079   Q.P. Code : [01 DMCA 53]

(For the candidates admitted during 2001 and 2007
Calendar Year)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

Fifth Semester

DISTRIBUTED COMPUTING

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

SECTION A — (20 × 1 = 20 marks)

1.   What is distribution?

2.   What is a distributed database?

3.   Give the role of DBA.

4.   Write any two reasons for developing distributed
     databases.

5.   DDBMS stands for ——————.

6.   Name the types of computer networks.

7.   Mention the factors for loading distributed data.

8. Write the types of fragmentation.

9. Define cardinality.

10. What is partitioning?

11. Write ay one use of a network database.

12. Give the use of data flow systems.

13. What is a file server?

14. Define scalability.

15. What is the use of E-mail?

16. What is transparences?

17. Give the use of print server.

18. What is concurrency?

19. LDI stands for —————.

20. Name any two schema of multibase.

SECTION B — (5 × 4 = 20 marks)

21. (a) Write short notes on distributed processing systems.

Or

(b) Write a brief note on networks.

2   D 1079

22. (a) Explain pros and cons of distribut processing.

Or

(b) Write short notes on loading factors.

23. (a) Write short notes on dimension analysis.

Or

(b) Explain briefly about ration analysis.

24. (a) Explain file server systems.

Or

(b) Explain the function of print server.

25. (a) Write the principles of distributed database

Or

(b) Explain the levels of transparency.

SECTION C — (5 × 12 = 60 marks)

26. (a) Explain the designing of a distribute processing system.

Or

(b) Discuss any two interconnection structure. with suitable diagram.

3   D 1079

27. (a) Explain the distributed database and the challenge of distributed data.

Or

(b) Explain the management process of the distributed resources.

28. (a) Explain the design considerations of a network database.

Or

(b) Explain in detail the database decision trees.

29. (a) Explain the architecture and the issues related to the e-mail server.

Or

(b) Explain the client-server network model.

30. (a) Discuss the distributed database design with suitable example.

Or

(b) Explain the problems of heterogeneous distributed databases.

Reg. No. : ....

D 1081   **Q.P. Code : [01 DMCA 55]**

(For the candidates admitted from 2001–2004
calendar year)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

Fifth Semester

Elective : ARTIFICIAL INTELLIGENCE AND EXPERT
SYSTEMS

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

All questions carry equal marks.

SECTION A — (20 × 1 = 20 marks)

1.   State the definition of Artificial Intelligence.

2.   What is Heuristic programming?

3.   Write short note on graph notations.

4.   Define Problem state.

5.   List the various categories of production system.

6.   Mention the advantages of BFS method.

7.   What is mean by OR graph.

8. Define knowledge level representation.

9. What is alpha-beta pruning?

10. Define qualifiers.

11. State the definition for predicate calculus.

12. What is proof finding methods?

13. Define Expert systems.

14. Give the example for Expert systems.

15. Define Resolution.

16. What is a knowledge base?

17. What is knowledge acquisition?

18. Mention any one of the knowledge representation technique.

19. What is resolvent?

20. What do you meant by futility?

SECTION B — (5 × 4 = 20 marks)

21. (a) Write short note on Puzzles and Games.

Or

(b) Briefly discuss about non-deterministic programs.

2   D 1081

22. (a) Write breadth first search algorithm.

Or

(b) Describe problem reduction representations.

23. (a) Write a brief note on Best-first search algorithm.

Or

(b) What is problem reduction search methods? Explain.

24. (a) Explain the use of Predicate Calculus in AI.

Or

(b) Discuss proof finding methods in detail.

25. (a) Explain the difficulties of developing an expert system.

Or

(b) Write short note on automatic knowledge acquisition.

SECTION C — (5 × 12 = 60 marks)

26. (a) Explain Problem States and Operators in detail.

Or

(b) Discuss heuristic programming methods in detail.

3   D 1081

27. (a) What is A^* algorithm? Explain.

Or

(b) Write AO^* algorithm.

28. (a) Describe Mini-Max Procedure.

Or

(b) Discuss Means Ends Analysis algorithm in detail.

29. (a) What is answer extraction process? Explain.

Or

(b) Explain automatic program writing.

30. (a) Explain the components of Expert System with neat diagram.

Or

(b) Discuss knowledge representation techniques in detail.

_____

Reg. No. : ....

D 1582   Q.P. Code : [02 DMCA 13]

(For the candidates admitted from 2002 to 2004
Calendar Year)

M.C.A. DEGREE EXAMINATION, MAY 2011 DEC 2010

First Semester

FOUNDATIONS OF COMPUTER SCIENCE

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

All questions carry equal marks.

SECTION A — (20 × 1 = 20 marks)

1.   Define 'Power Set'.

2.   What do you mean by 'Empty Set'?

3.   What is a 'finite automata'?

4.   Define an equivalence relation.

5.   Define 'Regular Expression'.

6.   Define DFA.

7. What is 'Minimal Set'?

8. Write down 'Newton's Formula'.

9. What do you mean by 'Regression line'?

10. Write the formula for 'Newton-Raphson Method.

11. What is 'Indirect method of Proof'?

12. State 'transitive property'.

13. Write down the truth table for $P \wedge \neg P$.

14. Write the formula for 'Conditional Probability'.

15. Define 'Rank of a Matrix'.

Say True or False :

16. A determinant changes sign when any two rows or columns are interchanged.

17. If A and B are mutually exclusive events then $P(A \cap B) = 0$.

18. Solutions of characteristic equation are eigen values.

19. Gauss Elimination method is an iterative method.

20. A language is a regular set if it is the set accepted by some finite automation.

2   D 1582

SECTION B — (5 × 4 = 20 marks)

21. (a) Show that $A \subseteq B \Leftrightarrow A \cap B = A$.

Or

(b) Prove that if A and B are independent events then A and $\bar{B}$ also independent events.

22. (a) Verify Cayley-Hamilton theorem for the matrix

$$A = \begin{bmatrix} 1 & 0 & 3 \\ 2 & 1 & -1 \\ 1 & -1 & 1 \end{bmatrix}.$$

Or

(b) A coin and a die are tossed. What is probability that the ace and the head will appear?

23. (a) Construct on NEA accepting all strings over {0, 1} which end in but does not contain the substring 00.

Or

(b) Show that for any two sets A and B $A - (A \cap B) = A - B$.

3   D 1582

24. (a) Establish that

$$\neg(P \wedge Q) \to \left(\neg P \vee \left(\neg P \vee Q\right)\right) \Rightarrow \left(\neg P \vee Q\right)$$

Or

(b) Define a non deterministic finite automation and give an example.

25. (a) Find a real of the equation

$$f(x) = x^3 - x - 1 = 0$$

by bisection method.

Or

(b) Compare, Gauss elimination and Gauss-Seidal iterative methods.

SECTION C — (5 × 12 = 60 marks)

26. (a) Find the eigen values and eigen vectors of

the matrix $\begin{bmatrix} 3 & -4 & 4 \\ 1 & -2 & 4 \\ 1 & -1 & 3 \end{bmatrix}$.

Or

(b) Prove that the following system of equations are consistent :

$$x + 2y + z = 2$$
$$2x - y - z = 2$$
$$4x - 7y - 5z = 2.$$

27. (a) A coin is tossed 3 times. Find the probability of obtaining atleast one head.

Or

(b) State and prove the theorem of compound probability.

28. (a) Construct the transition diagram of DFSA that accepts those input strings of 0's and 1's that contain the strings 01 (or) the string 10 any where within them.

Or

(b) Show that there exists an NFA with t-transitions that accepts $L(r)$, where r is a regular expression.

29. (a) Let S be any state in a finite-state machine and x and y be any words. Then show that

$$\delta(s, xy) = \delta(\delta(\delta, x), y) \text{ and } \lambda(s, xy) = \lambda(s(s, x), y)$$

Or

(b) If $s_i = s_j$, then prove that for any input sequence x, $\delta(s_i, x) \equiv \delta(s_j, x)$.

30. (a) Solve the system by Gauss-Elimination method :

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

Or

(b) Using N-R method, find correct to four decimal places, the roots between 0 and 1 of the equation $x^3 - 6x + 4 = 0$.

D 1302   Q.P. Code : [02 DMCA 21]

(For the candidates admitted from 2002 to 2004
calender year)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

Second Semester

COMPUTER SYSTEM ARCHITECTURE

Time : Three hours   Maximum : 100 marks

SECTION A — (20 × 1 = 20 marks)

Answer ALL questions.

1. The operations executed on data stored in registers are called —————.

2. What is a control function?

3. Define shift microoperation.

4. What is a binary adder?

5. What is an instruction code?

6. Give the function of accumulator.

7. What is hardwired control?

8. What is decoding?

9. Mention the use of output register.

10. Give the importance of input-output instructions.

11. What is an interrupt cycle?

12. DMA stands for ——————.

13. Mention any two outputs of the control logic circuit.

14. Name the types of ROM.

15. SRAM stands for ——————.

16. What is the use of cache memory?

17. What is a virtual memory?

18. Differentiate between RISC and CISC computers.

19. What do you mean by pipelining?

20. SIMD stands for ——————.

SECTION B — (5 × 4 = 20 marks)

Answer ALL questions.

21. (a) Explain the shift and logic microoperation.

Or

(b) Write briefly about instruction codes.

22. (a) Write a brief note program interrupt.

Or

(b) Explain any five memory-reference instructions.

23. (a) Explain briefly about I/O interface.

Or

(b) Write a note on bus scheduling.

24. (a) Write short notes on RAM.

Or

(b) Explain virtual memory.

25. (a) Write a brief note CISC processors.

Or

(b) Write short notes on array processor.

SECTION C — (5 × 12 = 60 marks)

Answer ALL questions.

26. (a) Discuss the various microoperations of a computer.

Or

(b) Explain the following :

(i) Instruction cycle

(ii) Timing and control.

27. (a) Discuss in detail the design of basic computer.

Or

(b) Explain in detail the design of accumulate logic.

28. (a) Write a detailed note on input-output configuration and program interrupt.

Or

(b) Explain in detail about DMA controller.

29. (a) Write a detailed note on types of RAM and its functions with suitable diagram.

Or

(b) Explain in detail the organisation of cache memory with diagram.

30. (a) Write a detailed note on pipelined and vector processors.

Or

(b) Explain in detail the multiprocessing systems – MIMD.

———

4 D 1302

D 1082   Q.P. Code : [02 DMCA 33]

(For the candidates admitted from 2002 to 2004
calendar year)

M.C.A DEGREE EXAMINATION, DECEMBER, 2010.

Third Semester

Part I

OBJECT ORIENTED ANALYSIS AND DESIGN

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

SECTION A — (20 × 1 = 20 marks)

1.   Define Object - Oriented Programming.

2.   What is a class?

3.   What do you meant by Object – Oriented Analysis?

4.   Mention the major elements of object model.

5.   Define an Entity abstraction.

6.   What is information hiding?

7. What is modularity?

8. _____ is a ranking or ordering of abstractions.

9. Give the examples of Typing.

10. Differentiate between constructor and destructor.

11. Mention the things that present in the UML

12. What is the use of use case diagrams in UML?

13. Differentiate between sequence and collaboration diagrams.

14. Mention the common mechanisms in the UML?]

15. Define an attribute.

16. A _____ is a contract or an obligation of a class.

17. What is a composite state?

18. What is the use of an Activity diagram?

19. What do you meant by tagged value?

20. Give the importance of constraints in UML.

SECTION B — (5 × 4 = 20 marks)

21. (a) Write short notes on Abstraction.

Or

(b) Write briefly about concurrency.

22. (a) Write a brief note on Relationship among classes.

Or

(b) Explain the importance of proper classification.

23. (a) Write briefly about the goals of UML.

Or

(b) Write short notes on activity view.

24. (a) Explain briefly about state machine.

Or

(b) Write short notes on sequence diagram.

25. (a) Explain the dependencies on Packages.

Or

(b) Write short notes on tailoring UML.

SECTION C — (5 × 12 = 60 marks)

26. (a) Explain in detail the nature of an object and relationships among objects.

Or

(b) Discuss the evolution of the object model.

27. (a) Explain in detail the nature of the class and relationship among classes.

Or

(b) Explain the following:

(i) Identifying proper classes and objects.

(ii) Key abstraction mechanism.

28. (a) Write a detailed note on static view.

Or

(b) Explain in detail the use case view.

29. (a) Write a detail about interaction view.

Or

(b) Write a detailed note on physical views.

30. (a) Explain in detail the model management view.

Or

(b) Explain the following

(i) Semantics responsibilities.

(ii) Notation responsibilities.

_____

D 1083   Q.P. Code : [02 DMCA 35]

(For the candidates admitted from 2002 to 2004
Calendar Year)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

Third Semester

STRUCTURED SYSTEM ANALYSIS AND DESIGN

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

SECTION A — (20 × 1 = 20 marks)

1. _____ provides the mechanism for understanding the customer needs, analyzing, assessing feasibility, negotiating a reasonable solution, specifying the solution unambiguously, validating the specification and managing the requirements as they are transformed into an operational system.

   (a)   System Engineering

   (b)   Requirement Engineering

   (c)   Software Engineering

   (d)   Process Engineering

2. _____ is used to define the elements of a system.

   (a) Data Dictionary (b) DFD

   (c) E-R diagram (d) Decision tree

3. _____ describe the information (data and control) that is input to and output from the system.

   (a) Report

   (b) System specification

   (c) Customer Requirements

   (d) All the above

4. Hard copy of a document can be obtained from

   (a) Card reader (b) Laser printer

   (c) CRT (d) Paper tape

5. _____ is a working system.

   (a) Probabilistic (b) Prototype

   (c) Closed (d) Deterministic

6. A series of operations on data by a computer in order to retrieve or transform or classify information called _____.

   (a) Information (b) Query

   (c) Data processing (d) Data base

7. _____ is diagram which represents conditions and actions.

   (a) Questions

   (b) Decision tree

   (c) Structured English

   (d) DFD

8. We can express the overall logical structure of a database graphically with _____.

   (a) DFD (b) E-R diagram

   (c) Both (a) and (b) (d) None of the above

The organization or structure for a database is called

   (a) Schema (b) Structure

   (c) Both (a) and (b) (d) None of the above

10. Information retrial is used for searching relational databases and WWW — True/False

11. _____ is an agent of change.

   (a) End user (b) Programmer

   (c) Module leader (d) System Analyst

12. Individual elements of data are called _____.

   (a) data base (b) file

   (c) record (d) data items

13. ―――――――is used in relational database system.

   (a) Relational model   (b) Network model

   (c) Hierarchal model   (d) Object model

14. ――――――― repository that contains descriptions of all data objects consumed or produced by the software.

   (a) Data base   (b) Data dictionary

   (c) File   (d) All the above

15. Executing more than one jobs simultaneously by time sharing or multiprocessing is called ―――――――.

   (a) On line processing (b) Data processing

   (c) File processing   (d) All the above

16. ――――――― is a processed data.

   (a) Information   (b) Data

   (c) Record   (d) File

17. The strength of relation between module is called

   (a) cohesion   (b) coupling

   (c) partitioning   (d) span of control

18. Interview is one of the ――――――― technique.

   (a) system   (b) subsystem

   (c) stable   (d) fat-finding

19. A ――――――― consist of elements which operate together to accomplish an objective.

   (a) project   (b) system

   (c) software   (d) module

20. ――――――― is a planned review of a system or it's software by persons involved in the development effort.

   (a) analysis   (b) design

   (c) testing   (d) walk through

SECTION B — (5 × 4 = 20 marks)

21. (a) Discuss about tools for systems development.

Or

   (b) What is the role of Database Administrations?

22. (a) Write the different methods of system Investigation.

Or

   (b) Why feasibility study is necessary? Explain.

23. (a) Discuss the different types of file systems in detail.

Or

   (b) Write a note on Grid chart.

24. (a) Explain the problems in communication.

Or

(b) Why normalization is necessary? Discuss.

25. (a) Write short note on report writing and standards need to be followed.

Or

(b) Discuss about three levels of Management Information Systems.

SECTION C — (5 × 12 = 60 marks)

26. (a) Briefly explain the important stages of system development life cycle.

Or

(b) Explain the characteristics of good system analyst.

27. (a) Explain the following term:

(i) Observation

(ii) Interviewing.

Or

(b) Explain about decision table.

28. (a) Explain in detail about code design.

Or

(b) Explain in detail about data base design.

29. (a) Explain about changeover instructions.

Or

(b) Explain the purpose of study proposal.

30. (a) Discuss in detail about physical system design.

Or

(b) Briefly explain about the different way of collecting requirements.

D 1084   Q.P. Code : [02 DMCA 43]

(For the candidates admitted from 2002 to 2004
calendar year)

M .C.A. DEGREE EXAMINATION, DECEMBER 2010.

Fourth Semester

SYSTEM SOFTWARE AND COMPILER DESIGN

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

All questions carry equal marks.

SECTION A — (20 × 1 = 20 marks)

1. Semantic gap between ——————— and ———————
    domains.

2. What is preprocessor?

3. Define Language processor.

4. Mention the activity of language processor.

5. Write the syntase for assembly language
    statement.

6. Write the mnemonic opcode for 'READ' and 'MULT',

7. List the types of assembly language statements.

8. What is LTORG?

9. Define Macro.

10. Mention the role of software tools.

11. ———————— is translate source program to target program.

12. What is symbol table?

13. Write the components of context-free grammar.

14. What is the role of lexical analyzer?

15. Define sentinels.

16. Give the diagram representation for the role of parser.

17. Draw the syntax tree for $a : = b * c + b * -c$.

18. Mention any one of advantages for code optimization.

19. Give the diagram representation for position of code generator.

20. What is back patching technique?

2   D 1084

SECTION B — (5 × 4 = 20 marks)

21. (a) What is language processing? Explain its fundamental concepts?

Or

(b) Explain the properties of stack and heap data structures.

22. (a) Write the assembly language program for N!.

Or

(b) Write the algorithm of Pass-I assembler.

23. (a) Draw the parse tree for 'Position: = initial + rate * 60'.

Or

(b) Explain Top-down parsing in detail.

24. (a) Briefly discuss about the issues of lexical analysis.

Or

(b) Write short note on context-free grammars.

25. (a) Explain the types of three-address statements.

Or

(b) Discuss issues in the design of a code generator.

3   D 1084

SECTION C — (5 × 12 = 60 marks)

26. (a) Discuss the language specificat: fundamental in detail.

Or

(b) Describe search data structure.

27. (a) Explain design of a two pass assembler.

Or

(b) Discuss macro expansion in detail.

28. (a) Explain the six phases of a compiler.

Or

(b) What is lexical analysis? Explain.

29. (a) Describe assignment statements.

Or

(b) Give the example for bottom up parsing a explain.

30. (a) What is basic block? Write the algorithm f partition into basic blocks.

Or

(b) Explain the principle source of co optimization.

———————

D 1309

Q.P. Code : [02 DMCA 46/
04 DMCA 23]

(For the candidates admitted from 2002 to 2005
calendar year)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

Fourth Semester

Elective — CLIENT/SERVER SYSTEMS/
CLIENT/SERVER TECHNOLOGY

Time : Three hours   Maximum : 100 marks

Answer ALL the questions.

SECTION A — (20 × 1 = 20 marks)

Define server.

What is meant by upsizing?

How are clients classified?

What is the role of middleware?

Expand MOM.

What are driver managers?

What is a TP monitor?

Define Transaction.

9. What are stored procedures?

10. Why is mining done?

11. What is SQL?

12. What are triggers?

13. RPC stands for ——————.

14. Mention the function of ORB.

15. Why is IPC done?

16. What is CORBA?

17. Who assigns IP address?

18. Define protocol.

19. What is Intranet?

20. What is meant by Blue tooth?

SECTION B — (5 × 4 = 20 marks)

21. (a) Write short notes on 3 Tier architecture.

Or

(b) Write short notes on the following :

(i) Down sizing

(ii) Right sizing.

2   D 1309

22. (a) Explain the different types of middleware.

Or

(b) How are servers scalable? Mention the Ba services provided.

23. (a) Write short notes on Hybrid Architecture.

Or

(b) What are chained and nested transactions?

24. (a) Enumerate few protocols supported by RPC

Or

(b) In what form information are passe between process? How?

25. (a) Compare intranet and extranet.

Or

(b) How are IP addresses assigned? Mention th types of IP addresses.

SECTION C — (5 × 12 = 60 marks)

26. (a) Summarize the important features client/server architecture.

Or

(b) Compare and contrast 2-Tier architecture V 3-Tier architecture.

3   D 130

27. (a) Explain in detail about the following :

   (i) Operating system services

   (ii) Base services

   (iii) External services.

   Or

   (b) Describe briefly about the basic building block of a client server system architecture.

28. (a) Explain in detail about SQL database server and the different architectures available.

   Or

   (b) Briefly discuss the different transaction models and management standards.

29. (a) Explain RPC.

   Or

   (b) Explain IPC.

30. (a) Mention the role played by CORBA for web services in detail with examples.

   Or

   (b) Highlight the recent trends and developments available in client/server computing environment.

_____

D 1085   **Q.P. Code : [02 DMCA 47]**

(For the candidates admitted from 2002–2004
calendar year)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

Fourth Semester

Elective : EMBEDDED SYSTEMS AND REAL-TIME
OPERATING SYSTEMS

Time : Three hours   Maximum : 100 marks

Answer ALL the questions.

All the questions carry equal marks.

SECTION A — (20 × 1 = 20 marks)

1.   What is meant by propagation delay?

2.   Expand PROM and EEPROM.

3.   Draw the truth table for a three input AND gate.

4.   What are the advantages and disadvantages of
edge-triggered interrupts?

5.   Define the term Assembler.

6.   Abbrivate ISR.

7. Give your solution "Can a microprocessor be interrupted in the middle of an instruction".

8. What is interrupt latency?

9. Define flip-flop.

10. What is meant by watchdog timers?

11. Expand RTK.

12. Define the term Semaphore.

13. Give the various types of real-time systems.

14. Define Monitors.

15. Write about Macro.

16. Write two examples for embedded software.

17. Narrate the use of pipe.

18. Draw a neat diagram for XOR gate.

19. Expand UART.

20. Give any two features of oscilloscopes.

SECTION B — (5 × 4 = 20 marks)

21. (a) Write short note on NAND gate.

Or

(b) Explain in detail about RAM.

2   D 1085

22. (a) Discuss in detail about Interrupts.

Or

(b) How can you solve the shared data problem? Illustrate with an example.

23. (a) Write note on RTOS.

Or

(b) Discuss in detail about timer function.

24. (a) Furnish in detail about the advantages and disadvantages of embedded software.

Or

(b) Briefly discuss about Memory Management.

25. (a) What do you mean by encapsulating Queues? Explain.

Or

(b) Write short note on assert Macro.

SECTION C — (5 × 12 = 60 marks)

26. (a) Explain in detail about the types of memory.

Or

(b) Describe in detail about the Micro processors.

3   D 1085

27. (a) Discuss briefly about the function-queue scheduling architecture.

Or

(b) Elaborate on functions of timing diagram with example.

28. (a) Discuss in detail about the types of semaphore with needed example.

Or

(b) Furnish a detail information about Message Queues and pipes with needed example.

29. (a) What are the various memory management issues involved in RTOS?

Or

(b) Explain the concept of embedded software development tools.

30. (a) Explain in detail about various debugging techniques.

Or

(b) Discuss the role of embedded software in the real world problems.

_____

D 2080 Q.P. Code : [02 DMCA 52]

(For the candidates admitted from 2002 to 2004
Calendar year)

M.C.A. DEGREE EXAMINATION, DECEMBER 2008

Fifth Semester

MANAGEMENT CONCEPTS AND COMMUNICATION

Time : Three hours Maximum : 100 marks

Answer ALL the questions.

All questions carry equal marks.

SECTION A — (20 × 1 = 20 marks)

Fill in the blanks.

1. The main exponent of the empirical school is _____.

2. _____ means the study of methods of ensure that they are performed in the best possible way.

3. —————— means receive orders from why one superior not from two many superiors.

4. —————— planning covers five to ten years.

5. —————— determines the shape of future events in the business.

True or False.

6. Work study is a technique applied to all kinds of efficiency problem.

7. Scalar chain refers to the line of authority followed by all communication.

8. Planning makes effective control and co-ordination.

9. Verbal Communication provide a personal intimate touch.

10. Delegation signifies relationship between two individuals.

Answer in one word.

11. Which study can be done through observation?

12. Which school has relationship with theory X and Y?

13. What is initiative?

14. Which planning is otherwise called strategic planning?

15. Give one example for on the Job training.

Match the following :

16. Job rotation   (a) External training

17. Role playing   (b) Herzberg hygiene theory

18. Two factors theory   (c) Job evaluation

19. Ranking system   (d) Different from domination

20. Leadership   (e) On the Job training

SECTION B — (5 × 4 = 20 marks)

21. (a) Is management an Art or a Science? Explain.

    Or

    (b) Bring out the objectives of management.

22. (a) Distinguish management from administration.

    Or

    (b) What are the managerial skills required by the manager?

23. (a) Describe the Bureaucratic model of Max Webber.

    Or

    (b) Describe the objectives of an organisation.

24. (a) Bring out the differences between authority and responsibility.

    Or

    (b) Discuss the disadvantages of decentralisation.

25. (a) Explain the process of staffing.

    Or

    (b) What are the prerequisites of a good recruitment policy?

SECTION C — (5 × 12 = 60 marks)

26. (a) What is the meaning of a selection process? Discuss the steps involved in it.

    Or

    (b) What is direction? Explain the role of direction in the management of an enterprise.

27. (a) What are the causes of low morale? How can it be improved?

    Or

    (b) Describe McGregor's theory 'X' and theory 'y'.

28. (a) What is break-even analysis? Can it be useful to management as a control device?

    Or

    (b) What is meant by budgetary control? Mention its advantages and limitations.

29. (a) What is the need of governing organisation by principles?

Or

(b) Explain the barriers to effective communication. Suggest remedial measures.

30. (a) Describe the importance of training.

Or

(b) Bring out the differences between formal and informal organisation.

_____

Reg. No. : ....

D 1086   Q.P. Code : [04 DMCA 01/ 05 DMCA 02]

(For the candidates admitted from 2004 to 2007 calendar year)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

First Semester

COMPUTER ORGANISATION AND ARCHITECTURE

Time : Three hours   Maximum : 100 marks

PART A — (20 × 1 = 20 marks)

Answer ALL questions.

1. Give the names of the gates which can be used can an inverter.

2. State De Morgan's Theorem.

3. State Distributive law.

4. Convert Binary to Decimal $(110011.11)_2$.

5. What is multiplexer?

6. Draw the internal logic diagram of Half-adder.

7. What does a counter do?

8. Write the Truth-Table of JK flipflop.

9. What is an instruction code?

10. What is addressing mode?

11. Define micro operation.

12. Name some arithmetic circuits in the digital computer.

13. What are I/O devices?

14. Describe Asynchronous Data transfer?

15. Define Intoropupt.

16. What is the need of DMA in digital computer?

17. What is cache memory?

18. Give some information about virtual memory.

19. Define the "hit ratio of the cache".

20. What is a latch?

PART B — (5 × 4 = 20 marks)

Answer ALL questions.

21. (a) Convert :

   (i) $(101010.010)_2$ to Decimal.

   (ii) $(0.246)_{10}$ to Binary.

Or

(b) Convert the following Boolean expression to SOP form.

   (i)   AB + B (CD+EF)

   (ii) (A+B) (B+C+D)

22. (a) Draw the logic diagram for 4-bit parallel adder using appropriate no of full adder and Half adder.

Or

(b) Draw and explain encoder circuit.

23. (a) Explain Register transfer operation with diagram.

Or

(b) Explain stack organisation with neat diagram.

24. (a) Explain different types of Input devices.

Or

(b) Describe Priority Intercept.

25. (a) Discuss about page replacement in virtual memory.

Or

(b) Explain any one type of mapping Procedure in cache memory.

PART C — (5 × 12 = 60 marks)

Answer ALL questions.

26. (a) Using k-map find the minimum SOP form for the following expression and draw the diagram.

(i) $\overline{A}\,\overline{B}\,\overline{C} + \overline{A}\,B\,C + A\,\overline{B}\,C$

(ii) $AC(\overline{B} + C)$

Or

(b) Using Boolean Algebra simplify the following.

(i) $BD + BC(D + E) + \overline{D}(D + F)$

(ii) $ABC[AB + \overline{C}(BC + AC)]$

27. (a) Explain 4 to 1 line multiplexer with truth table and diagram.

Or

(b) Explain 4-bit synchronous counter with block diagram and timing diagram.

28. (a) Explain Addressing Modes.

Or

(b) Give brief notes on instruction formats.

29. (a) What is the need of DMA in computer and briefly explain the operation of DMA.

Or

(b) With detailed logic diagram, briefly explain hand shaking methods.

30. (a) Explain main memory organization.

Or

(b) Write notes on Auxiliary memory and virtual memory.

———————

Reg. No. : ....

D 1303   Q.P. Code : [04 DMCA 03]

(For the candidates admitted during 2004 and 2005
calendar year)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

First Semester

FOUNDATIONS OF COMPUTER SCIENCE

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

SECTION A — (20 × 1 = 20 marks)

1.   Define an equivalence Relation.

2.   What is finite automata.

3.   Define submonoid.

4.   Define singular matrix.

5.   State cayley hamilton theorem.

6.   Define Regression.

7.   What do you mean by transcendental equation.

8.   Define inverse of a matrix.

9. Find the probability that the number appearing on a die is greater than 3.

10. For any two events A and B, Find $P(\overline{A \cup B})$.

11. Define a finite automata.

12. What is a transition diagram.

13. What is equivalent to $P \Rightarrow Q$.

14. Give trapezoidal rule.

15. What do you meant by Indirect method of proof.

16. Write the formula for N-R Method.

17. Give Lagrange's Interpolation formula.

18. Define DFA.

19. Is the iteration method, a self correcting method always.

20. Write down the truth table for $P \wedge \neg P$.

2   D 1303

SECTION B — (5 × 4 = 20 marks)

21. (a) Show that for any two sets A and B,

$$A - (A \cap B) = A - B.$$

Or

(b) Show that $A \subseteq (A \cup B)$ and $(A \cap B) \subseteq A$.

22. (a) Prove by Mathematical induction that $2^n - n > 0$, for all $n \in n$.

Or

(b) Verify Cayley-Hemilton theorem for the matrix

$$A = \begin{bmatrix} 1 & 0 & 3 \\ 2 & 1 & -1 \\ 1 & -1 & 1 \end{bmatrix}.$$

23. (a) Obtain a disjunctive normal form of $\neg (P \vee Q) \Leftrightarrow (P \wedge Q)$.

Or

(b) S.T $(p \wedge (p \leftrightarrow q)) \Rightarrow q$ is a tautology using truth table.

3   D 1303

24. (a) Define a non-deterministic finite automation and give an example.

Or

(b) Explain NAND and NOR connectives.

25. (a) Using bisection method, Obtain a root of $x^3 - 4x - 9 = 0$. Correct to the decimal places.

Or

(b) Compare, Gauss elimination and Gauss-Seidal iterative methods.

SECTION C — (5 × 12 = 60 marks)

26. (a) Find the eigen values and eigen vectors of the matrix.

$$\begin{bmatrix} 1 & 2 & 3 \\ 2 & 3 & 1 \\ -2 & -3 & -1 \end{bmatrix}$$

Or

(b) Find the inverse of the matrix:

$$A = \begin{bmatrix} 3 & 3 & 3 \\ 2 & -3 & 4 \\ 0 & -1 & 1 \end{bmatrix}.$$

4 D 1303

27. (a) State and prove Baye's theorem for mutually exclusive events.

Or

(b) From the following data, find

(i) The two Regression equations.

(ii) The coefficient of correlation between:

Marks in Economics: 25 28 35 32 31 36 29 38 34 32

Marks in Statistics: 43 46 49 41 36 32 31 30 300 39

28. (a) Find the language recognized by the NDFSA, $M = <I, Q, q_o, \delta >, F >$ where $I = [a, b]$, $Q = \{q_o, q_1, q_2\}$ $F = [q_2]$ and δ is given by

δ	a	b
q_0	$\{q_o, q_1\}$	ϕ
q_1	ϕ	$[q_2]$
q_2	ϕ	$[q_2]$

Or

5 D 1303

(b) Construct a NDFA for the following regular expressions:

    (i)   Set of all strings ending with 'a'.

    (ii)   Set of all strings with the substing 'aba'

    (iii) Set of all strings with even no. of a's.

29. (a) Show that, without using truth tables,

$$\neg(P \Leftrightarrow Q) \Leftrightarrow ((P \vee Q) \wedge \neg(P \wedge Q)) \Leftrightarrow ((P \wedge \neg Q) \vee (\neg P \wedge Q))$$

Or

(b) Explain with illustration of consistency of premises and Indirect method of proof.

30. (a) Using Newton Raphson Method, Find coprrect to four decimal places, the root between 0 and 1 of the equation $x^3 - 6x + 4 = 0$.

Or

(b) Solve by Gauss-elimination method.

$$2x + y + 4z = 12$$
$$8x - 3y + 2z = 20$$
$$4x + 11y - z = 33$$

———

D 2085   Q.P. Code : [04 DMCA 07]

(For the candidates admitted from 2004 and 2005
calendar year)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010

Second Semester

OBJECT ORIENTED ANALYSIS AND DESIGN AND
C++

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

All questions carry equal marks.

PART A — (20 × 1 = 20 marks)

1.   What is Modularity?

2.   Define the term "Hierarchy".

3.   What do you mean by State diagram?

4.   Define "Component".

5.   Explain the term "Relationship".

6.   An object represents an entity by physically is
       called ————————

7. A ————————— is a description of a group of objects with common properties, behaviour, relationships, and semantics.

8. A ————————— is a general purpose mechanism for organizing elements into groups.

9. ————————— are the physical realization of an abstraction in the design

10. An ————————— abstracts one or more classes and/or subsystems in the system's design.

11. ————————— is an unconditional control statement.

12. When a function is called by —————————,the changes inside the function affect the main program also.

13. ————————— function counts and returns the number of characters in a string.

14. A ————————— is a collection of data items of different data types is referenced under the same name.

15. A ————————— class is declared within the scope of another class.

16. What is operator overloading?

17. Define the term Virtual destructor.

18. State the use of Random file.

19. What do you mean by Stream Insertion Operator?

20. State the need for command line arguments.

PART B — (5 × 4 = 20 marks)

21. (a) What do you mean by Analysis Model?

        Or

    (b) State the four basic principles of object orientation.

22. (a) What is meant by Generalization?

        Or

    (b) List the importances of Object Diagram.

23. (a) List the Bit wise operators in C++.

        Or

    (b) State the uses of constructors in C++.

24. (a) What is the purpose of escape sequences?

        Or

    (b) List the uses of While statement.

25. (a) State the principles of Multiple Inheritance.

        Or

    (b) Write about Operator Overloading with example.

PART C — (5 × 12 = 60 marks)

26. (a) Write a note on   Application of a Obj
Model.

Or

(b) Describe with suitable examples about
relationship among Objects.

27. (a) Explain in detail about the importance
Classification.

Or

(b) Discuss with example about the nature
classification of Classes.

28. (a) Write an essay on control structures in C-

Or

(b) Explain in detail about the functions in C

29. (a) What is meant   by Constructor? Exp
in detail.

Or

(b) Describe in detail about the Arrays
examples.

30. (a) Write a C++ program to show st
concatenation and reverse of a string.

Or

(b) Write a C++ program to implement fr
function.

D 1088   Q.P. Code : [04 DMCA 10]

(For the candidates admitted during 2004 and 2005
calendar year)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

Second Semester

OPERATIONS RESEARCH

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

SECTION A — (20 × 1 = 20 marks)

1.   Define basic feasible solution of LPP.

2.   Define optimal solution in LPP.

3.   Define a dual of the LPP.

4.   Write the optima lity condition in dual simplex
     method.

5.   Define a assignment problem.

6.   What is mean by unbalanced transportation
     problem?

7. Write any two methods of transportation problem.

8. Write any one difference between A.P and T.P.

9. Define EOQ.

10. What do you mean by ABC analysis?

11. Define Buffer Stock.

12. What is with and without shortage?

13. Define replacement models.

14. What is group replacement model?

15. What is Inter arrival time and arrival rate?

16. Define traffic intensity.

17. Write any one difference between CPM and PERT.

18. What do you mean by Balking and reneging in queue?

19. What is service rate?

20. What is another name for resale value?

SECTION B — (5 × 4 = 20 marks)

21. (a) State any two applications of O.R.

Or

(b) Solve the LPP using graphical method.

Max $z = 5x + 3y$

Subject to $2x + y \geq 1$

$$x + 4y \leq 6$$

x and $y \geq 0$

22. (a) Explain the term 'Degeneracy' in transportation problem.

Or

(b) State the steps in Hungerian model solving assignment problem.

23. (a) Write a short note on inventory control.

Or

(b) Briefly explain the advantages and disadvantages of having inventory control.

24. (a) Briefly discuss the importance of replacement models.

Or

(b) Write a short note on the objectives of using network analysis.

25. (a) Write a note on birth and death process in queuing theory.

Or

(b) At a one man barber shop, the customers arrive according to Poisson fashion at an average rate of 5 per hour and they are served according to exponential distribution with an average service rate of 10 minutes. Find the average number of customer waiting in the system and the average waiting time spent by a customer in the system.

SECTION C — (5 × 12 = 60 marks)

26. (a) Find the dual of the problem

Max $z = 3x + y + z$

Subject to

$$x - y \le 2$$
$$2x + y + 3z \ge 12$$
$$5x - 6z \le 13$$
where $x, y, z \ge 0$

Or

(b) Using simplex method solves the problem

Max $z = 4x + 10y$

Subject to $2x + y \le 50$
$$2x + 5y \le 100$$
$$2x + 3y \le 90$$
where $x, y \ge 0$

27. (a) Consider the problem of assigning five jobs to the people. The assignment cost are given as follows :

	1	2	3	4	5
A	8	4	2	6	1
B	0	9	5	5	4
C	3	8	9	2	6
D	4	3	1	0	3
E	9	5	8	9	5

Determine the optimum assignment schedule. Here 1, 2, 3, 4,5 are jobs and A to E are persons.

Or

(b) Obtain the initial basic feasible solution to the following transportation problem.

	P	Q	R	S	
A	30	25	40	20	100
B	29	26	35	40	250
C	31	33	37	30	150
D	31	33	37	30	150
	90	160	200	50	

28. (a) A company buys in lots of 500 boxes which is a three month supply. The cost per box is Rs. 125.00 and the ordering cost is Rs. 150.00. The inventory carrying cost is estimated at 20 % of unit value.

   (i) Determine the total annual cost of the existing inventory policy

   (ii) How much money could be saved by employing the economic order quantity?

   Or

(b) What are inventory models? Enumerate various types of inventory models and describe them briefly.

29. (a) A machine costs Rs. 500. The operation and maintenance costs are zero for the 1st year and increased by 100 every year. If the money value is 5% worth every year, Determine the best age which the machine should be replaced. The resale value of the machine is negligibly small. What is the mean cost of owning and operating the machine?

   Or

(b) The following table gives the activities in a construction project and other relevant information.

   Activity :   1-2 1-3 2-3 2-4 3-4 4-5
   Duration (days) : 20 25 10 12   6 10

   (i) Draw the network for the project.

   (ii) Find the critical path and project duration.

   (iii) Find the total float for each activity.

30. (a) A Ticket window is manned by a single server. The arrival to the ticket window is in Poisson pattern with average interval time as 2 minutes. The time to serve a customer is exponentially distributed with mean 90 seconds. Find

   (i) The expected numbers of customers waiting in the queue

   (ii) The expected ideal time for the server in each day

   (iii) The average waiting time in the queue, in the steady state.

   Or

(b) In a super market the average arrival rate of customers is 10 every 30 minutes, following Poisson process. The average time taken by the cashier to list and calculate the customer's purchases in 2.5 minutes, following exponential distribution. What is the Probability that the queue length exceeds 6? For what is the expected time spent by a customer in the system?

D 1089   **Q.P. Code : [04 DMCA 15]**

(For the candidates admitted during 2004 and 2005
Calendar Year)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

Third Semester

MULTIMEDIA

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

SECTION A — (20 × 1 = 20 marks)

1.   What is Multimedia?

2.   Mention any two multimedia platforms.

3.   What are the basic components of a multimedia system?

4.   Mention any two base software tools for developing multimedia.

5.   What is the purpose of multimedia authoring tools?

6.   What is meant by non-temporal media?

7.   What are the temporal media supported by multimedia?

8. Differentiate digital and analog media.

9. Mention any two file formats for representing images.

10. What is animation?

11. How video files are represented in multimedia?

12. What is the need for image compression in multimedia?

13. Define Internet.

14. Mention any two applications of Multimedia over Internet.

15. What is www?

16. Expand TCP/IP.

17. Define the term resolution.

18. Expand HDTV.

19. EDTV stands for ——————.

20. What is meant by knowledge base?

SECTION B — (5 × 4 = 20 marks)

21. (a) Briefly discuss about where to use multimedia.

Or

(b) Mention the important features of 3-D modeling tool.

2 D 1089

22. (a) Briefly explain the techniques used to link multimedia objects.

Or

(b) Discuss in brief about cross-platform compatibility with respect to multimedia.

23. (a) Write short notes on capturing and editing images in multimedia.

Or

(b) Discuss about broadcast video standards briefly.

24. (a) Briefly explain the basic services provided by Internet.

Or

(b) Write short notes on Web Servers.

25. (a) What is desktop computing? Explain briefly.

Or

(b) Specify the salient features of a knowledge based multimedia system.

SECTION C — (5 × 12 = 60 marks)

26. (a) Describe various types of multimedia authoring tools in detail.

Or

3 D 1089

(b) Explain the following :
   (i) Image editing tools.
   (ii) Animation, video and digita
       movie-making tools.

27. (a) Explain in detail how to make an instan
       multimedia.

                    Or

    (b) Explain how to use sound professionally in a
        multimedia presentation.

28. (a) Explain the impact of animation in a
        multimedia project in detail.

                    Or

    (b) Describe various video compression
        techniques in detail.

29. (a) Write notes on tools for www.

                    Or

    (b) Explain the methods for developing and
        presenting the elements of multimedia in
        www.

30. (a) Explain the following :
    (i) HDTV
    (ii) ATV transmission standards.

                    Or

    (b) How to design a knowledge based
        multimedia system? Explain in detail.

                    _____

D 1089   Q.P. Code : [04 DMCA 15]

(For the candidates admitted during 2004 and 2005
Calendar Year)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

Third Semester

MULTIMEDIA

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

SECTION A — (20 × 1 = 20 marks)

1.   What is Multimedia?

2.   Mention any two multimedia platforms.

3.   What are the basic components of a multimedia system?

4.   Mention any two base software tools for developing multimedia.

5.   What is the purpose of multimedia authoring tools?

6.   What is meant by non-temporal media?

7.   What are the temporal media supported by multimedia?

8. Differentiate digital and analog media.

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15. What is www?

16. Expand TCP/IP.

17. Define the term resolution.

18. Expand HDTV.

19. EDTV stands for —————.

20. What is meant by knowledge base?

SECTION B — (5 × 4 = 20 marks)

21. (a) Briefly discuss about where to use multimedia.

Or

(b) Mention the important features of 3-D modeling tool.

22. (a) Briefly explain the techniques used to link multimedia objects.

Or

(b) Discuss in brief about cross-platform compatibility with respect to multimedia.

23. (a) Write short notes on capturing and editing images in multimedia.

Or

(b) Discuss about broadcast video standards briefly.

24. (a) Briefly explain the basic services provided by Internet.

Or

(b) Write short notes on Web Servers.

25. (a) What is desktop computing? Explain briefly.

Or

(b) Specify the salient features of a knowledge based multimedia system.

SECTION C — (5 × 12 = 60 marks)

26. (a) Describe various types of multimedia authoring tools in detail.

Or

2 D 1089

3 D 1089

(b) Explain the following :

(i) Image editing tools.

(ii) Animation, video and digital movie-making tools.

27. (a) Explain in detail how to make an instant multimedia.

Or

(b) Explain how to use sound professionally in a multimedia presentation.

28. (a) Explain the impact of animation in a multimedia project in detail.

Or

(b) Describe various video compression techniques in detail.

29. (a) Write notes on tools for www.

Or

(b) Explain the methods for developing and presenting the elements of multimedia in www.

30. (a) Explain the following :

(i) HDTV

(ii) ATV transmission standards.

Or

(b) How to design a knowledge based multimedia system? Explain in detail.

———————

D 1090   Q.P. Code : [04 DMCA 18]

(For the candidates admitted from 2004 to 2007
Calender Year)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

Fourth Semester

MANAGEMENT CONCEPTS AND
COMMUNICATION

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

SECTION A — (20 × 1 = 20 marks)

1. Management is ——————.

2. The Primary aim of manning is to ——————.

3. Functional organization is based on the principle
   of ——————.

4. Negative motivation is based on ——————.

5. Leadership is a process of ——————.

6. Communication is the Process of Passing
   ——————.

7. Staffing function deals with the appointing of _____.

8. Motivation is a force which keeps a person _____.

9. Planning helps to _____.

10. Departmentation is the Process of _____ the activities.

11. What is functional Departmentation?

12. Who is Responsible for Staffing?

13. What is motivation?

14. What is agenda?

15. What is grapevine?

Match the following :

16. Sole Trader   (a) Setting goals

17. Joint Stock Company   (b) Limited Liability

18. Leadership   (c) Specialization

19. Motivation   (d) Unlimited Liability

20. Division of Labour   (d) Stimulating People

2   D 1090

SECTION B — (5 × 4 = 20 marks)

21. (a) Define management Discuss its main Characteristics.

Or

(b) What is management? Discuss its importance in the Running of a modern Business

22. (a) What are the different types of organization?

Or

(b) What is the need of departmentation?

23. (a) What are the sources of Recruitment?

Or

(b) Describe the nature of autocratic and democratic styles of leadership.

24. (a) What are the basic Principles of effective communication?

Or

(b) Explain the importance of Communication.

25. (a) Discuss the merits and demerits of oral communication.

Or

(b) Explain the layouts of business letters.

3   D 1090

SECTION C — (5 × 12 = 60 marks)

26. (a) What are the functions of management?

Or

(b) Explain the various steps are involved Planning.

27. (a) Define 'Organisation' Explain the Princi of organisation.

Or

(b) What do you mean by departmentati Discuss the steps involved in this Process.

28. (a) What is staffing? Explain the various sta in selection Produce.

Or

(b) Discuss in detail Maslow's Theory motivation.

29. (a) What are the steps in control process?

Or

(b) What are barriers to communication? A explain how to overcoming these barriers.

30. (a) Explain the steps are followed whi conducting a company meeting.

Or

(b) Draft a sales letter for introducing a ne model scooter.

4

D 1091 Q.P. Code : [04 DMCA 19]

(For the candidates admitted from 2004 to 2007 calendar year)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

Fourth/Fifth Semester

Elective — E-Commerce

Time : Three hours Maximum : 100 marks

Answer ALL the questions.

SECTION A — (20 × 1 = 20 marks)

Give short answer :

1. What is e-commerce?

2. Name any two elements of e-commerce applications.

3. Give the purpose of 'hub'.

4. Define : I—way.

5. What are called as healthy viruses?

6. Give an advantage of messaging.

7. What is called as referent?

8. Write the use of URLs.

9. Name any two properties of e-cash.

10. Specify the risks associated with e-payment systems.

11. Is e-check an another form of e-token?

12. What is digital signature?

13. Expand the term OLTP.

14. What is referred to supply chain?

15. Give an issue related to user agents.

16. Expand the term : TIFF.

17. Define : Trawling.

18. For what type of businesses, the interactive catalog's are suited?

19. Define : Information Filtering.

20. Give the significance of VRML.

SECTION B — (5 × 4 = 20 marks)

21. (a) Describe the anatomy of e-commerce applications.

Or

(b) Explain the public policy issues shaping the I-way.

22. (a) Write a note on hypertext publishing.

Or

(b) Explain the technology behind the web.

23. (a) Describe the layered architecture of EDI.

Or

(b) Discuss the factors to be considered while designing e-payment systems.

24. (a) Elaborate the issues behind document infrastructure.

Or

(b) What are the types of data warehouses? Explain.

25. (a) List the six-step interactive marketing process.

Or

(b) Discuss about world-level indexing method.

SECTION C — (5 × 12 = 60 marks)

26. (a) Describe the e-commerce organizat
applications.

Or

(b) What are the components of I-way? Expla:

27. (a) Explain the architectural framework
e-commerce.

Or

(b) Discuss the mercantile models from
consumer's perspective.

28. (a) Describe the digital token-based e-paym
systems.

Or

(b) Elaborate the credit card-based e-payme
systems.

29. (a) Give an overview of intra organizatio:
e-commerce.

Or

(b) List and explain the types of digi
documents.

30. (a) Discuss the key aspects associated w:
advertising on the Internet.

Or

(b) Elaborate the usage of e-commerce catalog:

4 D 10:

Reg. No. : ....

D 1092   Setting copy   Q.P. Code : [05 DMCA 01]

(For the candidates admitted from 2005 to 2007
Calendar Year)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

First Semester

INTRODUCTION TO INFORMATIO0N
TECHNOLOGY

Time : Three hours   Maximum : 100 marks

SECTION A — (20 × 1 = 20 marks)

Answer ALL the questions.

1.   Define Computer.

2.   What is data?

3.   Expand MIPS.

4.   What is meant by ASCII?

5.   Define a byte.

6.   What are BMP files?

7. What are the two types of compression techniques?

8. List out the different storage format for pictures.

9. List out the different storage format for audio.

10. Mention the significance of digital camera.

11. What is the need for ROM?

12. Mention the types of plotter available in the market.

13. List out few optical storage devices.

14. If CPU is available in a single chip, how it is called?

15. How are software classified?

16. Mention any two function of system software.

17. Define Protocol.

18. What is HTTP?

19. Mention any two fundamental business computing systems.

20. What is URL?

SECTION B — (5 × 4 = 20 marks)

Answer ALL questions.

21. (a) How are computers classified?

Or

(b) Enumerate important characteristics of computers.

22. (a) Write short notes on Animation.

Or

(b) What is meant by Morphing? Write short notes.

23. (a) Write short notes on Flash Memory.

Or

(b) Explain the three basic types of optical disk.

24. (a) Write short notes on the components of a database.

Or

(b) Briefly explain the types of Network.

25. (a) Highlight the important advantages of INTRANET.

Or

(b) Write short notes on Email service.

SECTION C — (5 × 12 = 60 marks)

26. (a) With a neat block diagram explain the different functional units of a Desktop Computer.

Or

(b) Explain the different coding system available to represent a numeric data and identify some of the error detecting codes.

27. (a) Explain the Image compression techniques available to perform compression and describe the relevant decompression techniques.

Or

(b) How are Multimedia data processed? Explain in detail.

28. (a) Explain in detail about the organization of Hard disk and Floppy disk and their respective drives.

Or

(b) Write short notes on :

(i) Archival memory

(ii) Output devices.

29. (a) Describe in detail about any three popular different Network Topologies.

Or

(b) Explain in detail about the classification of computer software.

30. (a) Describe in detail about the different development phases of a software life cycle.

Or

(b) List out some of the vital Internet Applications and comment few lines on each application.

———————

D 1093   Q.P. Code : [05 DMCA 03]

(For the candidates admitted from 2005 to 2007
Calendar Year)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

First Semester

PROBLEM SOLVING IN C

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

All questions carry equal marks.

PART A — (20 × 1 = 20 marks)

1.   What is a pseudocode?

2.   Define instruction set.

3.   Why were the fourth generation languages
      necessary?

4.   Where do we get logical errors?

5.   What are runtime errors? Give examples.

6. Define a variable.

7. What is a C word?

8. Give syntax for conditional operator.

9. What is the use of logical! operator?

10. Give the syntax the usage of goto statement.

11. What is the need for functions?

12. How many values can a function return?

13. What is the significance of terminating condition is recursion?

14. Give the syntax of declaring a structure variable

15. What is union?

16. Give the significance of & and * operators.

17. a [i] and i [a] are equivalent. Justify.

18. What is call by reference?

19. Give the purpose of fopen ( ) and fclose ( ).

20. Define a macro.

PART B — (5 × 4 = 20 marks)

21. (a) What are the advantages and disadvantages of flow charts?

Or

(b) What are the steps involved in executing a C program?

22. (a) Why do we use relational operators? List out them is C. Give an example.

Or

(b) Write short notes on storage classes.

23. (a) Write a C program to find whether a number is prime or not using function.

Or

(b) What is the need for array of structures? Explain with an example.

24. (a) Differentiate between call by value and call by reference with an example.

Or

(b) Write a C program to find out the minimum and maximum values is a list of values by using pointers.

25. (a) What are the most commonly performed operations over files? Explain briefly.

Or

(b) Explain preprocessor directives.

PART C — (5 × 12 = 60 marks)

26. (a) Briefly explain the desirable characteristics of a good program and the steps in the program development process.

Or

(b) Write short notes on :

(i) What is the need for programming languages?

(ii) What are syntactical, linker and runtime errors? Give examples.

27. (a) What is an operator? Explain different types of operators used in 'C' program with an example.

Or

(b) Explain iterative statements in detail.

28. (a) Define recursion. Write a 'C' program to find the sum of digits of a number by using recursion.

Or

(b) Explain the four standard library functions supported by C to deal with dynamic memory allocation.

29. (a) Write a 'C' program to sort a list of names using array of pointers to strings.

Or

(b) Write short notes on :

(i) Pointers and Arrays

(ii) Pointers and structures.

30. (a) What are bitwise operators? Enumerate all the bitwise operators. Explain the working of bitwise operators and explain their significance.

Or

(b) Write short notes on :

(i) Command line arguments.

(ii) DOS Interrupts.

D 1094   Q.P. Code : [05 DMCA 04]

(For the candidates admitted from 2005 to 2007
Calendar Year)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

First Semester

NUMERICAL ALGORITHMS AND STATISTICS

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

SECTION A — (20 × 1 = 20 marks)

Choose the correct answer :

1. If A is a 3×3 matrix and $|A| \neq 0$, then the rank of
    A is equal to

    (a) Zero   (b) Three

    (c) Two   (d) One.

2. The solution of the system of equations is

    (a) (0, 1, 0)   (b) (1, 1, 1)

    (c) (–1, 6, 1)   (d) None.

3. The shift operator E is

   (a) $1 - \Delta$ (b) $1 + \Delta$

   (c) $\Delta - 1$ (d) Δ.

4. The limits for Bowley's co-efficient of skewness is

   (a) $+3$ and -3 (b) 0 and 3

   (c) -1 and $+1$ (d) $-\infty$ and $+\infty$.

5. A coin is tossed 3 times in succession, the number of sample point in sample space is

   (a) 6   (b) 8

   (c) 3   (d) None.

Fill in the blanks :

6. $\int_a^b y\,dx = \frac{1}{2} h(A + 2B)$ approximately, is the well-known —————— rule.

7. The Simpson's one third rule is ——————.

8. Binomial distribution is also known as —————— distribution.

9. If the Kurtosis of a distribution is 3, it is called —————— distribution.

10. Karl Pearson's correlation coefficient is given by ——————.

True / False :

11. The rank of a matrix is equal to the order of the highest order non-vanishing determinant of A.

12. If events A and B are such that $P(A) \neq 0$, $P(B) \neq 0$ and A is independent of B, then B is dependent of A.

13. Gauss Elimination method is an iterative method.

14. Method of false position is known as method of chords.

15. The probability of getting a 'four' in a single toss of an unbiased die is $1/12$.

Answer the following :

16. Define the rank of a matrix.

17. What is the basic creteria behind Newton Raphson method?

18. What is the other name of Gauss Seidal method?

19. Write the formula for geometric mean of n values.

20. Define uniform distribution.

SECTION B — (5 × 4 = 20 marks)

21. (a) Determine the rank of the following matrix.

$$A = \begin{bmatrix} 1 & -2 & 3 \\ -2 & 4 & -6 \\ 5 & 1 & -1 \end{bmatrix}.$$

Or

(b) Examine the consistency of the following system :

$x - 4y + 5z = 8$

$3x + 7y - z = 3$

$x + 15y - 11z = -14.$

22. (a) In the table below estimate the missing values :

x :   2 3 4 5 6

$L(x)$: 45.0 49.2 54.1 67.4

Or

(b) Evaluate $I = \int_0^6 \dfrac{dx}{1+x}$ using Simpson's 1/3 rule.

23. (a) Find the roots of the equation $e^x = 4x$ by using Newton's method, which is approximately 2, correct to three places of decimals.

Or

(b) Solve, by Gauss Jordan method.

$2x - 3y + z = -1$

$x + 4y + 5z = 25$

$3x - 4y + z = 2.$

24. (a) State and prove 'addition theorem' of probability.

Or

(b) Calculate the mean for

Class interval :	0 – 8	8 – 16	16 – 24
Frequency :	8	7	16

Class interval :	24 – 32	32 – 40	40 – 48
Frequency :	24	15	7

25. (a) Prove that $P(\overline{A}) = 1 - P(A)$, $\overline{A}$ is a complement of A.

Or

(b) What is the probability of getting 9 cards of the same suit in one hand at a game of bridge?

4   **D 1094**

5   **D 1094**

SECTION C — (5 × 12 = 60 marks)

26. (a) Fit a straight line for the following data using principle of least squares. Also estimate the value of y at $x = 2.5$.

    x: 0 1 2 3 4

    y: 1 1.8 3.3 4.6 6.3

    Or

    (b) Fit a parabola by the method of least squares to the following data. Also estimate y at $x = 6$.

    x: 1 2 3 4 5

    y: 5 12 26 60 97

27. (a) Obtain the equation for the normal curve that may be fitted to the following data.

Class :	60 – 65	65 – 70	70 – 75	75 – 80
Frequency :	3	21	150	335
Class :	80 – 85	85 – 90	90 – 95	95 – 100
Frequency :	326	135	26	4

    Or

    (b) Use Lagranges interpolation formula of interpolation and find $y(9.5)$ given :

    x: 7 8 9 10

    y: 3 1 1 9

6 D 1094

28. (a) Derive Simpson 1/3rd rule from Newtons forward difference formula.

    Or

    (b) Evaluate $\int_{1}^{3} \frac{1}{x} dx$ by Simpson's rule with 4 strips and 8 strips respectively.

29. (a) Explain partial correlation and multiple correlation with examples.

    Or

    (b) Solve the system by Gauss Seidal's method.

    $10x + 2y + z = 9$

    $2x + 20y - 2z = -44$

    $-2x + 3y + 10z = 22.$

30. (a) Calculate the correlation coefficients for

    x: 65 66 67 67 68 69 70 72

    y: 67 68 65 68 72 72 69 71

    Or

    (b) Obtain the equation of two lines of regressions. Also estimate of x for $y = 70$.

    x: 65 66 67 67 68 69 70 72

    y: 67 68 65 68 72 72 69 71

——————

7 D 1094

Reg. No. : ....

D 1095   Q.P. Code : [05 DMCA 05]

(For the candidates admitted from 2005 to 2007
Calendar Year)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

First Semester

ACCOUNTING AND FINANCIAL MANAGEMENT

Time : Three hours   Maximum : 100 marks

SECTION A — (20 × 1 = 20 marks)

Answer ALL questions.

Fill in the blanks :

1.   Recording of Business Transaction is usually done in ——————— books.

2.   Working Capital is the difference between current assets and ———————.

3.   Redemption of preference shares is an ——————— of funds.

4.   ——————— Budget is for different levels of activity.

5.   At Break even point, Total cost is equal to ———————.

True or False :

6. Ledge is the Second important stage in the accounting cycle.

7. High Turnover Ratios usually indicate managerial efficiency.

8. A 'source of funds' always increase cash position.

9. Material costing is based on the Principle of "Variability of costs".

10. Material Consumption budget is based on sales.

Match the following :

11. Creditors   (a) Technique

12. Current Ratio   (b) Liability

13. Depreciation   (c) Sales in excess of BFP

14. Budget   (d) Ability to meet short term obligation

15. Margin of safety   (e) A Non fund item.

Answer in one word :

16. What is Journal?

17. Define marginal costing.

18. What is fund flow statement?

19. Write short notes on master Budget.

20. What are the use of Break even analysis?

PART B — (5 × 4 = 20 marks)

21. (a) What are the Characteristics of Accounting concepts and conventions?

Or

(b) What are the differences between Trading account profit and loss a/c.

22. (a) What is meant by Ratio analysis? Discuss its objects and limitations.

Or

(b) Accounting Ratios are mere guides and complete reliance on then in decision – making is suicidal – Elucidate.

23. (a) What is fund flow statement? How is it prepared?

Or

(b) Distinguish Between funds flow statement and Balance sheet.

24. (a) Define budgetary context and state its objectives.

Or

(b) Define budget. Give a description of important Budgets.

25. (a) What is meant by cost–volume profit Analysis? Explain its importance.

Or

(b) What are the Classification of cost?

PART C — (5 × 12 = 60 marks)

26. (a) What is master Budget? What are its Components?

Or

(b) How and why cash Budgets are prepared?

27. (a) Discuss the managerial uses of funds flow statement what are its limitations?

Or

(b) Explain the different kinds of Break even charts.

4   D 1095

28. (a) From the Following Trial Balance of Ravi. Prepare Trading and profit and loss a/c for the year ended Dec 31, 1993 and a Balance sheet as on that Date.

Particulars	Debit (Rs.)	Credit (Rs.)
Capital	–	40,000
Sales	–	25,000
Purchases	15,000	–
Salaries	2,000	–
Rent	1,500	–
Insurance	300	–
Drawings	5,000	–
Machinery	28,000	–
Bank Balance	4,500	–
Cash	2,000	–
Stock 1.1.93	5,200	–
Debtors	2,500	–
Creditors	–	1,000

Adjustments :

(i) Stock on 31.12.93 Rs. 4,900.

(ii) Salaries unpaid Rs. 300.

5   D 1095

(iii) Rent Paid in advance Rs. 200.

(iv) Insurance prepaid Rs. 90.

Or

(b) Perfect Ltd. gives the following balance sheets.

You are required to compute the following ratios :

(i) Liquid ratio

(ii) Debt-Equity ratio

(iii) Solvency ratio

(iv) Stock-working capital ratio.

Balance as on 31.12.2009

Liabilities	Rs.	Assets	Rs.
Equity share capital	15,00,000	Fixed assets	14,00,000
Reserves and surplus	1,00,000	Stock	5,00,000
6% debentures	3,00,000	Debtors	2,00,000
Overdraft	1,00,000	Cash	1,00,000
Creditors	2,00,000		
	22,00,000		22,00,000

6

D 1095

29. (a) From the following Balance sheets of Exe Ltd. make out cash flow statement.

	2003	2004		2003	2004
Liabilities	Rs.	Rs.	Assets	Rs.	Rs.
Equity share capital	3,00,000	4,00,000	Goodwill	1,15,000	90,000
8% redeemable preference share capital	1,50,000	1,00,000	Land and buildings	2,00,000	1,70,000
			Plant	80,000	2,00,000
General reserve	40,000	70,000	Debtors	1,60,000	2,00,000
Profit and Loss	30,000	48,000	Stock	77,000	1,09,000
Proposed dividend	42,000	50,000	Bills received	20,000	30,000
Creditors	55,000	83,000	Cash in Hand	15,000	10,000
Bills payable	20,000	16,000	Cash at Bank	10,000	8,000
Provision for taxation	40,000	50,000			
	6,77,000	8,17,000		6,77,000	8,17,000

Or

(b) Draw up a flexible budget for overhead expenses on the basis of the following data and determine the overhead rates at 70%, 80% and 90% plant capacity.

Variable overheads	At 70% capacity (Rs.)	At 80% capacity (Rs.)	At 90% capacity (Rs.)
Indirect labour	–	12,000	–
Stores including spares	–	4,000	–

7

D 1095

Variable overheads	At 70% capacity (Rs.)	At 80% capacity (Rs.)	At 90% capacity (Rs.)
Semi variable overheads :			
Power (30% fixed 70% variable)	–	20,000	–
Repairs and maintenance (60% fixed 40% variable)	–	2,000	–
Fixed overheads :			
Depreciation	–	11,000	–
Insurance	–	3,000	–
Salaries	–	10,000	–
		62,000	

Estimated direct labour hours – 1,2 ,000 hrs.

30. (a) An analysis of Tiptop manufacturing to ltd led to the following information :

Cost element	Variable cost (% of sales)	Fixed cost
Direct material	32.8	
Direct labour	28.4	

Cost element	Variable cost (% of sales)	Fixed cost
Factory overhead	12.6	1,89,900
Distribution overheads	4.1	58,400
Administrative overheads	1.1	66,700

Budgeted sales are Rs. 18,50,000. You are Required to determine

(i) The Break even sales volume.

(ii) The profit at the budgeted sales volume.

(iii) The Profit, if actual sales drop; by 10% increase by 5% from budgeted sales.

Or

(b) A company is expecting to have Rs. 25,000 cash in hand on 1st April 2005 and it requires you to prepare an estimate of cash Position during the three month, April to June 2005. The following information is supplied to you.

Month	Sales (Rs.)	Purchase (Rs.)	Wages (Rs.)	Expenses (Rs.)
February	70,000	40,000	8,000	6,000
March	80,000	50,000	8,000	7,000
April	92,000	52,000	9,000	7,000
May	1,00,000	60,000	10,000	8,000
June	1,20,000	55,000	12,000	9,000

Other information :

(i) Period of credit allowed by Suppliers two months

(ii) 25% of sale is for cash and period of credit. allowed to customers for credit sale one month

(iii) Delay in payment of wages and expenses – one month

(iv) Income tax of Rs. 25,000 is to be paid in June 2005.

———————————

30. (a) Find the DFA equivalent to the NFA.
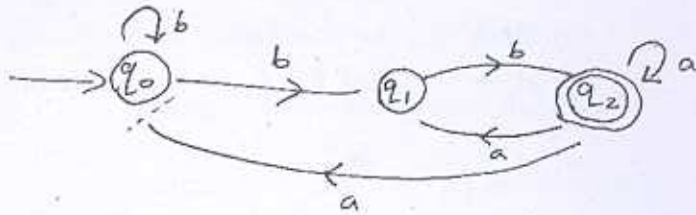
Or

(b) Show that the grammar $G = \{(S, A), (a, b), S, P\}$, where $P = \{S, \to aS, S \to Sa, S \to bAb, A \to aAb, A \to acb\}$ is ambiguous.

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D 1096 Q.P. Code : [05 DMCA 10]

(For the candidates admitted from 2005 to 2007 calander year)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

Second Semester

FOUNDATIONS OF COMPUTER SCIENCE

Time : Three hours Maximum : 100 marks

SECTION A — (20 × 1 = 20 marks)

Answer ALL the questions.

1. Find the sum and product of the eigen values of the matrix

$$\begin{bmatrix} 1 & 1 & 1 \\ 1 & 2 & 2 \\ 1 & 2 & 3 \end{bmatrix}.$$

2. State Cayley Hamilton theorem on matrix.

3. Find the eigen vectors of $\begin{bmatrix} 1 & 2 \\ 0 & 1 \end{bmatrix}$.

4. Show that the matrix $A = \begin{bmatrix} \cos\theta & \sin\theta \\ -\sin\theta & \cos\theta \end{bmatrix}$ is orthogonal.

5. Define function and give an example.

6. If R is a relation from A [{1, 2, 3} to $B = \{4, 5\}$ given by $R = \{(1, 4), (2, 4), (1, 5), (3, 5)\}$ find R^{-1}.

7. State the principle of mathematical induction.

8. Prove that $(a + b)(a'+b) = b$ in a Boolean algebra.

9. Construct the truth table $(P \wedge Q) \vee \neg(P \vee Q)$.

10. Show that $(\neg P \wedge (\neg Q \wedge R)) \vee (Q \wedge R) \vee (P \wedge R) \Leftrightarrow R$ (use only the laws)

11. Write the following sentence in a symbolic form

    "Every one who is healthy can do all kinds of work".

12. Show that $P \to (q \vee r) \Leftrightarrow (p \wedge \neg q) \to r$.

13. Define complete and draw the undirected. Complete graph K.

14. Find all cycles in

15. Define a binary tree. When is it called a full binary tree.

16. What do you mean by tree traversal?

17. In a finite automata
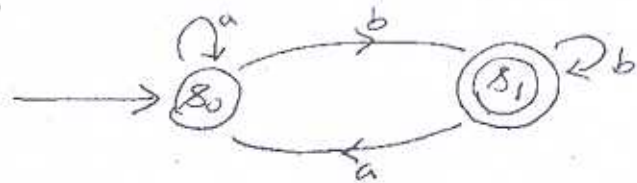
    Find whether the following are accepted (a) $a^m b^n$ (b) $a^n b^m a^k$.

18. Define a regular grammar.

19. Define finite state automata.

20. Give the main difference between NFA and DFA.

SECTION B — (5 × 4 = 20 marks)

Answer ALL questions.

21. (a) Find the eigen values of the matrix

$$\begin{pmatrix} 2 & 2 & 0 \\ 2 & 1 & 1 \\ -7 & 2 & -3 \end{pmatrix}.$$

Or

(b) Verify that $A = \begin{bmatrix} 1 & 2 \\ 2 & -1 \end{bmatrix}$ satisfies its own characteristic equation.

22. (a) If $\mathbf{R}$ denotes the set of real numbers and $f : \mathbf{R} \rightarrow \mathbf{R}$ is given by $f(x) = x^3 - 2$, find f^{-1}.

Or

(b) In Boolean algebra, if $a + b = 1$ and $a.b = 0$ show that $b = a^1$.

23. (a) Show that $(\exists x) Q(x)$ follows logically from the premises $(\exists x) \ p(x)$, $(\forall x) \ (P(x) \rightarrow Q(x))$.

Or

(b) Show that $[(p \vee q) \wedge (p \rightarrow r) \wedge (q - r)] \rightarrow r$ is a tautology.

24. (a) Draw the graphs represented by the following incidence matrix

$$\begin{array}{c} \\ A \\ B \\ C \\ D \end{array} \begin{array}{ccccc} e_1 & e_2 & e_3 & e_4 & e_5 \end{array} \\ \begin{pmatrix} 1 & 1 & 1 & 0 & 0 \\ 0 & 0 & 0 & 1 & 0 \\ 0 & 0 & 1 & 0 & 1 \\ 0 & 1 & 0 & 1 & 1 \end{pmatrix}$$

Or

(b) Prove that a tree with n vertices has $(n-1)$ edges.

25. (a) Design an NFA that accepts the non-null strings over $\{a, b\}$ ending with abb or ba.

Or

(b) Find the languages generated by the grammar $G = \{(S, A), (a, b, c), S, P\}$ where P consists of the production $\{S \rightarrow aSb, Sb \rightarrow bA, abA \rightarrow C\}$.

SECTION C — (5 × 12 = 60 marks)

Answer ALL questions.

26. (a) Verify Cayley-Hamilton theorem for the matrix $A = \begin{pmatrix} 3 & -4 & 2 \\ -2 & 1 & 0 \\ -1 & -1 & 1 \end{pmatrix}$ also find A^{-1}.

Or

(b) Find the eigen values and eigen vectors of the matrix

$$\begin{pmatrix} 3 & 1 & 1 \\ 1 & 3 & -1 \\ 1 & -1 & 3 \end{pmatrix}.$$

27. (a) Using mathematical induction, prove that $2^n < \angle n$ for every positive integer n with $n \geq 4$.

Or

(b) If $f, g : \mathbf{R} \to \mathbf{R}$ where $f(x) = ax + b, g(x) = 1 - x + x^2$ and $(g \circ f)(x) = 9x^2 - 9x + 3$ find the values of a and b.

28. (a) (i) Expand NANO connectives interms of NOR connectives. (4)

(ii) Show that the premises $E \to S$, $S \to H$, $A \to \neg H$ and $E \wedge A$ are inconsistent/.(8)

Or

(b) (i) Without using Truth table obtain the principle disjunctive normal form of $P \to ((P \to Q) \wedge \neg(\neg Q \vee \neg P))$. (4)

(ii) Obtain the principal conjunctive normal form of the formula $P \vee (\neg P \to (Q \vee (\neg Q \to R)))$.

29. (a) Represent the postfix expression $ab + cd * ef /--a^{\bullet}$ as a binary tree and write also the corresponding infix and prefix forms.

Or

(b) (i) Define walk, paths. (4)

(ii) Prove that a graph is a tree iff it is minimally connected. (8)

30. (a) Find the DFA equivalent to the NFA.
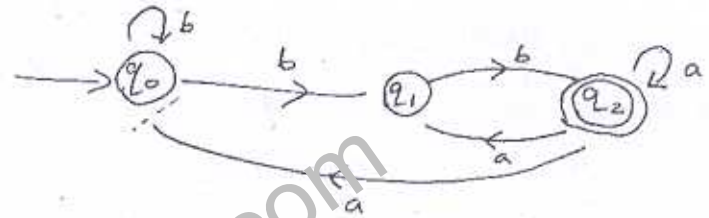
Or

(b) Show that the grammar $G = \{(S, A), (a, b), S, P\}$, where $P = \{S, \to aS, S \to Sa, S \to bAb, A \to aAb, A \to acb\}$ is ambiguous.

D 1097   Q.P. Code : [05 DMCA 11]

(For the candidates admitted from 2005 to 2007
calander year)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

Third Semester

OBJECT ORIENTED ANALYSIS DESIGN AND C++

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

All questions carry equal marks.

SECTION A — (20 × 1 = 20 marks)

Fill in the blanks :

1.   _____ denotes the essential characteristics of an object.

2.   _____ is the property of an object that distinguishes it from all other objects.

3.   The header file _____ must be include when we use cin and cout function.

4. _____ provides the capability to redefine the language in which working of operator can be changed.

5. _____ can be invoked using pointer or reference.

True or False :

6. An object — oriented analysis and design represents an evolutionary development, not a revolutionary one.

7. Classification is fundamentally a problem of clustering.

8. Auto is an identifier.

9. Pointer saves the memory space.

10. The function of throw statement is to send the exception found.

Match the following :

11. Keyabstraction   (a) Part of function.
12. Concurrency   (b) Class
13. Return   (c) Object
14. Multiple Inheritance   (d) Elements of object model.
15. Exception   (e) More than one base class

Answer in 1 sentence :

16. Define encapsulation.

17. Define object.

18. What is the purpose of goto statement?

19. Which pointer points to an unallocated memory location or to data value whose memory is deallocated?

20. What do you meant by string?

SECTION B — (5 × 4 = 20 marks)

21. (a) Explain Object Oriented Programming.

Or

(b) Write short notes on behavior.

22. (a) Describe relationships among classes.

Or

(b) Explain the classification and object-oriented development.

23. (a) What are the statements that perform an unconditional control transfer?

Or

(b) Explain the concept of operator precedence.

24. (a) What are the characteristics of constructor and destructor?

Or

(b) Write a C++ program to use a multiple inheritance.

25. (a) Explain the new and delete operator.

Or

(b) What are the methods used to handle the string objects?

SECTION C — (5 × 12 = 60 marks)

26. (a) Explain in detail about the major elements of object model.

Or

(b) Explain the two kinds of object hierarchy of interest in Object-Oriented Analysis and Design.

27. (a) Discuss about the classical and modern approaches.

Or

(b) Explain the concept of Key abstractions and Mechanisms.

28. (a) What are the various methods by which we can pass value to the function? Explain in detail.

Or

(b) Write C++ program to illustrate the use of

(i) if–else–if ladder.

(ii) for–loop with break statement.

29. (a) Explain the various types of inheritance with suitable example.

Or

(b) Write a C++ program to find the determination of 2 × 2 matrix using pointers.

30. (a) (i) What is virtual function? What are the rules for virtual function?

(ii) Write a C++ program to declare virtual function and execute the same function defined in base and derived class.

Or

(b) List out the various steps of file operation and explain in detailed.

———————

D 1098   Q.P. Code : [05 DMCA 12]

(For the candidates admitted from 2004-2007 Calendar year)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

Third Semester

ADVANCED OPERATING SYSTEM

Time : Three hours   Maximum : 100 marks

SECTION A — (20 × 1 = 20 marks)

1.   Define Distributed Os.

2.   Draw the process sate transitions.

3.   Mention any two essential properties of real time systems.

4.   What is meant by the context of a process?

5.   Write the significance of semaphores.

6.   List the requirements that must be satisfied by critical-section problem.

7.   What is meant by race condition?

8. Define mutual exclusion.

9. What are the various models of distributed system?

10. List out communication protocols for RPC.

11. Write any 3 features of Distributed file system.

12. What are the advantages of file caching schemes?

13. Write any 3 features of UNIX OS.

14. Define inode.

15. What is meant by super block?

16. Define Thrashing.

17. Define spooling.

18. List out various page replacement algorithms.

19. Define Process migration.

20. What are the library routines available in UNIX OS?

SECTION B — (5 × 4 = 20 marks)

21. (a) Explain different types of OS.

Or

(b) Write short notes on Multithreading.

22. (a) Write short notes on message passing.

Or

(b) Write the Dining Philosophers Problem.

23. (a) List and explain all the design issues involved in distributed systems.

Or

(b) Write short notes on Distributed File replication.

24. (a) Give the architecture of UNIX OS and explain.

Or

(b) Discuss about allocating and releasing inodes in detail.

25. (a) Discuss in detail about Booting process in UNIX.

Or

(b) Explain the responsibilities of loft process.

SECTION C — (5 × 12 = 60 marks)

26. (a) Explain the various services provided by an operating system.

Or

(b) Explain the concept of Processes in UNIX Operating system.

27. (a) Write and explain the Reader's and Writer's problem. Also provide the solution for the problem using semaphores.

Or

(b) Write and explain the Producer Consumer problem. Explain how the solution is obtained for the problem.

28. (a) Explain distributed file systems in detail.

Or

(b) Draw and explain the flow of activity that takes place during a remote procedure call (RPC) between two networked systems.

29. (a) Explain the file system management in UNIX 2000.

Or

(b) Explain in detail about various Disk Block allocation methods used in UNIX.

30. (a) How does UNIX manage the processes? Explain.

Or

(b) Explain various process scheduling algorithms in detail.

———————

D 1099   Q.P. Code : [05 DMCA 14]

(For the candidates admitted from 2005 to 2007
calendar year)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

Third Semester

COMPUTER NETWORKS

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

SECTION A — (20 × 1 = 20 marks)

1. A set of rules that govern data communication
    between the sender and the receiver is called

    (a) rule   (b) protocol

    (c) law   (d) option.

2. The three important goals of data communications
    are correct delivery, accurate delivery and
    _____.

    (a) Late delivery

    (b) On the spot delivery

    (c) Timely delivery

    (d) Delivery on the next day

3. A _____ is used to send digital data over analog telephone lines.

   (a) multiplexer   (b) repeater

   (c) amplifier   (d) modem

4. The _____ layer is the topmost layer in the OSI model.

   (a) Physical   (b) Transport

   (c) Session   (d) Application

5. Optical fibers uses _____ for data transmission.

   (a) voltage   (b) current

   (c) light   (d) sound

6. Geosynchronous satellites move at _____ RPM as that of the earth.

   (a) same   (b) half

   (c) double   (d) thrice

7. _____ is a digital multiplexing technique.

   (a) FDM   (b) TDM

   (c) STDM   (d) none.

8. STP helps eliminate _____.

   (a) noise   (b) cross talk

   (c) error   (d) voltage.

9. A signal travels through any medium; its strength decreases due to _____.

   (a) noise   (b) delay distortion

   (c) attenuation   (d) re-transmission.

10. Overhead bits are added to data in case of _____.

    (a) CRC   (b) parity checking

    (c) noise   (d) none.

11. In _____ the sender sends one frame and waits for an acknowledgement from the receiver before sending the next frame.

    (a) Stop-and-wait (b) Go-back-n

    (c) Sliding window (d) CRC

12. The receiver sends a _____ back to the sender if every thing was OK.

    (a) NAK   (b) PAK

    (c) ACK   (d) NCK

13. The ———————— indicate how long a packet can live.

(a) Routing table (b) Packet lifetime

(c) Packet date (d) Router

14. Link state routing uses the technique of ————————.

(a) Flooding (b) Next hop

(c) Random numbers (d) Timely delivery

15. ———————— does not offer reliable delivery mechanism.

(a) UDP (b) TCP

(c) ARP (d) FTP

16. Currently, the IP address has a size of ———————— bits.

(a) 128 (b) 64

(c) 32 (d)

17. TFTP is an example of ———————— layer protocol.

(a) Application (b) Network

(c) Transport (d) Physical

18. ———————— is a storage area to store emails.

(a) Database (b) File

(c) Mailbox (d) Server

19. For transferring big files over the Internet, the ———————— protocol is used.

(a) SMTP (b) POP

(c) HTTP (d) FTP

20. ———————— protocol is used for transferring mails over the Internet.

(a) POP (b) SMTP

(C) IP (d) MIME

SECTION B — (5 × 4 = 20 marks)

21. (a) Discuss about service primitives.

Or

(b) Explain the two types of transmission technology of a computer Communication Network.

22. (a) Explain the structure of the telephone system.

Or

(b) Explain briefly the characteristics of any one-transmission media.

23. (a) Describe the Simplex Stop-and-Wait protocol with procedures.

Or

(b) Describe the algorithm for computing checksum.

24. (a) Discuss about IP Addresses.

Or

(b) Draw and explain the UDP header format.

25. (a) Explain the concept of traditional cryptography.

Or

(b) Discuss about the principal DNS resource record types.

6 D 1099

SECTION C — (5 × 12 = 60 marks)

26. (a) Draw the block diagram of OSI reference model and describe their layered approach and its functions.

Or

(b) Describe the architecture and frame format of Ethernet.

27. (a) Explain the optical transmission system.

Or

(b) Discuss about Mobile telephone system.

28. (a) Describe the four commonly used framing methods by the Data Link Layer.

Or

(b) Implement the Simplex protocol for Noisy Channel.

29. (a) Explain the network layer design issues.

Or

(b) Describe any four routing algorithms.

7 D 1099

30. (a) Discuss about various authentication protocols.

Or

(b) Discuss about Electronic Mail.

_____

D 1100   Q.P. Code : [05 DMCA 15]

(For the candidates admitted from 2005 to 2007
Calendar year)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

Third Semester

OPERATIONS RESEARCH

Time : Three hours   Maximum : 100 marks

Answer ALL the questions.

SECTION A — (20 × 1 = 20 marks)

1. Define linear programming problem in canonical form.

2. Big M method is used to solve ____ having ──────── constraints.

3. Define slack variable.

4. Define a feasible solution.

5. MODI method is used to obtain ──────── to the transportation problem.

6. The necessary and sufficient condition for existence of a feasible solution to transportation problem is —————.

7. Define loop in a TP.

8. To solve assignment problem ————— method is used.

9. Define EOQ.

10. Define reorder point.

11. Define carrying cost.

12. Define demand.

13. Define order cycle.

14. Give the formula for EOQ.

15. Define replacement problem.

16. Give any one difference between CPM and PERT.

17. Define Queue.

18. What is meant by dangling events?

19. What is traffic intensity?

20. What is pure birth model?

SECTION B — (5 × 4 = 20 marks)

21. (a) A company produces two models M_1 and M_2. Each M_1 model requires 4 hours of grinding and 2 hours of polishing; where as each M_2 model requires 2 hours of grinding and 5 hours of polishing. The manufacturer has 2 grinders and 3 polishing. Each grinder works for 40 hours a week and each polisher works for 60 hours a week. Profit on M_1 model is Rs. 3.00 and on M_2 model is Rs. 4.00. Whatever is produced in a week is sold in the market? How should the manufacture allocate his production capacity to the two types of models so that he may make the maximum profit in a week?

Or

(b) Solve the LPP graphically :

Find the

Min $Z = 4x_1 + 2x_2$

S.t. $x_1 + 2x_2 \geq 2$
$3x_1 + x_2 \geq 3$
$4x_1 + 3x_2 \geq 6$
$x_1, x_2 \geq 0$

22. (a) Obtain an initial basic feasible solution using VAM's method.

	D_1	D_2	D_3	Supply
O_1	2	7	4	5
O_2	3	3	1	8
O_3	5	4	7	7
O_4	1	6	2	14
Demand	7	9	18	34

Or

(b) Write the mathematical formulation of the assignment problem.

23. (a) An item is produced at the rate of 100 nos. per day. The demand occurs at the rate of 60 per day. If the set up cost is Rs. 100/- per set up and holding cost is Re. 0.02 per unit per day. Find the economic batch size per run.

Or

(b) Explain the common errors in forming networks.

24. (a) Construct the network for B, C,..., Q,N. Such that B<E, F ; C<G, L ; E,G <H ; L, H <I ; L<M ; H<N ; H<J ; I, J<P; P<Q.

Or

(b) Define t_0, t_p, t_m.

25. (a) A firm is considering replacement of a machine whose cost price is Rs. 12,000 and scrap value Rs. 200. The running cost are

Year	1	2	3	4	5	6	7	8
Running cost :	200	500	800	1200	1800	2500	3200	4000

When should the machine be replaced?

Or

(b) Explain any three costs involved in inventory problem.

SECTION C — (5 × 12 = 60 marks)

26. (a) Use two phase simplex method to solve

Max $Z = 5x_1 + 3x_2$

S.t.
$$2x_1 + x_2 \le 1$$
$$x_1 + 4x_2 \ge 6$$
$$x_1, x_2 \ge 0$$

Or

(b) Use Big-M method to solve :

Min $Z = 12x_1 + 20x_2$

S.t.
$$6x_1 + 8x_2 \ge 100$$
$$7x_1 + 12x_2 \ge 120$$
$$x_1, x_2 \ge 0$$

4   D 1100

5   D 1100

27. (a) Solve the following transportation problem :

$$\begin{pmatrix} 7 & 9 & 3 & 2 \\ 4 & 4 & 3 & 5 \\ 6 & 4 & 5 & 8 \end{pmatrix} \quad \begin{matrix} \text{Available} \\ 16 \\ 14 \\ 20 \end{matrix}$$

Requirement 11 9 22 8

Or

(b) Solve the following assignment problem to find the maximum total expected sale.

	Area	I	II	III	IV
	A	42	35	28	21
Salesman	B	30	25	20	15
	C	30	25	20	15
	D	24	20	16	12

28. (a) Find optimum order quantity for which the price breaks are as follows :

Quantity	Unit Cost (Rs.)
$0 \le Q_1 < 800$	Re. 1.00
$800 \le Q_2$	Re. 0.98

The yearly demand for product is 1,600 units per year, cost of placing and order is Rs. 5, the cost of storage is 10% per year.

Or

(b) A company uses annually 50,000 units of an item each costing Rs. 1.20. Each order costs Rs. 45 and inventory carrying costs are 15% of annual average inventory value.

6   D 1100

(i) Find EOQ.

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

29. (a) A project consist of tasks A, ...I having constraints construct a network.

A<D, E; B, D <F; C<G; B<H; F, G <I

Find minimum time of completion of time. When time for each task is

Task :	A	B	C	D	E	F	G	H	I
Time :	23	8	20	16	24	18	19	4	10

Or

(b)
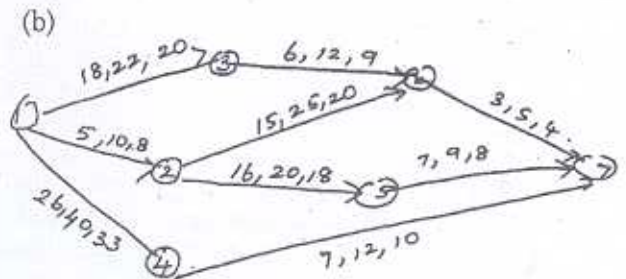
Determine

(i) expected task and variances

(ii) earliest and latest expected times to reach each node

(iii) critical path.

7   D 1100

30. (a) In a railway marshalling yard, goods trains arrive at a rate of 30 trains per day. Assuming that interval arrival time follows an exponential distribution and the service time is also exponential with an average of 36 minutes.

Calculate :

(i) mean queue size (line length)

(ii) prob. that queue size exceeds 10.

If the input trains increases to an average 33 per day. What will be the change in (i) and (ii).

Or

(b) There are 1000 bulbs in the system. Survival rate is given below :

Week :	0	1	2	3	4
Bulbs in operation at the end of the week :	1,000	850	500	200	00

The group replacement of 100 bulbs costs Rs. 100 and individual replacement is Re. 0.50 per bulb. Suggest suitable replacement policy.

———————

Reg. No. : ....

D 1310 Q.P. Code : [04 DMCA 25]

(For the candidates admitted during 2004 and 2005 calendar year)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

Fifth Semester

WEB PROGRAMMING

Time : Three hours Maximum : 100 marks

Answer ALL questions.

All questions carry equal marks.

SECTION A — (20 × 1 = 20 marks)

1. Highest level Header format in HTML is ——————.

2. Using —————— tag, an image is inserted.

3. The default color setting in a browser for hyperlink is ——————.

4. A row that spans across columns of the table is ——————.

5. A simplest way to direct textual output to the browser window ——————.

6. —————— are used to read or modify data contain in an object in Javascript.

7. A —————— appears as dropdown list.

8. —————— is shared between client and server regarding the web.

9. Disc, circle, square values are found in ——————.

10. The extension of style sheets ——————.

11. —————— event handling event depends on user interaction.

12. The —————— provides access to all the embedded objects in a document.

13. —————— function is used to separate the strings in perl.

14. —————— function returns the 1st element of an array in perl.

15. A —————— is the sequence of characters to find a fixed pattern in perl.

16. —————— to match a single character is used in perl.

17. —————— request throws information to the server in scripting language.

18. —————— is involved in handling to know about the session.

19. —————— is used to describe between WWW server and external application.

20. —————— is specified by world wide web consortium.

SECTION B — (5 × 4 = 20 marks)

21. (a) Explain about font size and fond colour in HTML.

Or

(b) Describe about the border attributes to store an image.

22. (a) What is a recursive function in Javascript?

Or

(b) Differentiate between break and continue and labelled break and continue.

23. (a) How are the parameters referenced in Javascript?

Or

(b) Use style sheet for applying the various font attributes.

24. (a) Write about navigator object.

Or

(b) What are flip filters?

25. (a) Write about ActiveX components.

Or

(b) Explain about XML parsers.

SECTION C — (5 × 12 = 60 marks)

26. (a) Create an HTML document and use attributes of tables, frames for a school web pages.

Or

(b) Describe about

(i) List

(ii) Image

(iii) Linking in HTML documents.

27. (a) Explain in brief about the features of Java Script and decision making.

Or

(b) List the various modules in Java Script and the logical operators.

28. (a) What are allocating arrays and referenced parameters in Javascript?

Or

(b) Discuss about inline styles and linking external style sheets.

29. (a) Discuss about event model in DHTML.

Or

(b) Explain about various control structure and datatypes in VB Script function.

30. (a) Describe about file system object and accessing database in ASP.

Or

(b) Give a brief description about various form processing and business logic in CGI.

———————

D 1101   **Q.P. Code : [04 DMCA 27]**

(For the candidates admitted during 2004 and 2005 calendar year)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

Fifth Semester

TCP/IP

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

SECTION A — (20 × 1 = 20 marks)

1. What is meant by supernetting?

2. Convert the hexadecimal C22F 1582 into dotted decimal notation.

3. What is the uses of subnet masking?

4. What is meant by domain name?

5. Why fragmentation is required in Internet?

6. List the types of routing table used in Datagram routing.

7. How many networks and host maximum allowed in Class A address?

8. What is purpose of IGMP?

9. What is the operation of UDP?

10. Define : TFTP.

11. State the difference between POP3 and IMAP4.

12. What is uses of User Agent in SMTP?

13. What are the advantages of using MIME protocols in E-mail?

14. What is meant by hand off?

15. What is meant by mobile agent?

16. What is the meant by cryptography?

17. Define : SMI.

18. What is agent discovery in Mobile IP?

19. What is meant by exposed station problem?

20. List the three phases of Mobile IP.

SECTION B — (5 × 4 = 20 marks)

21. (a) Discuss the concept of Ansnet and Milnet.

Or

(b) Explain the classless addressing.

22. (a) Explain the proxy ARP in detail.

Or

(b) Describe the types of ICMP messages.

23. (a) Discuss the DHCP in detail.

Or

(b) Explain the DNS message and types of records.

24. (a) Describe the operations of FTP in detail.

Or

(b) Explain the various components used in E-mail.

25. (a) Explain the SNMP messages in detail.

Or

(b) Discuss the registration and data transfer in Mobile IP.

PART C — (5 × 12 = 60 marks)

26. (a) Explain the TCP connection management in details.

Or

(b) What is IP address? What is the purpose of assigning IP address in the machine. Describe the various types of IP address in detail.

27. (a) Discuss the concepts of RARP protocol? Explain the fragmentation and reassembly in detail.

Or

(b) Describe the error reporting, query and checksum of ICMP in detail.

28. (a) Explain the multicast routing protocols in detail.

Or

(b) Elaborate the operation and Message of IGMP.

29. (a) What is SMTP? What are the disadvantages of SMTP? Explain the header format of MIME.

Or

(b) Describe the mail access protocols in detail.

30. (a) Explain the concept and components of SNMP in detail.

Or

(b) Describe the routing the cells and logical IP subnet over ATM in detail.

—————

D 1102   Q.P. Code : [04 DMCA 28]

(For the candidates admitted from 2004 to 2007
celender year)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

Fourth/Fifth Semester

Elective – DIGITAL IMAGE PROCESSING

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

SECTION A — (20 × 1 = 20 marks)

1.   What is digital image processing?

2.   Write any two components of an image processing.

3.   Define perception.

4.   Compare digital image and binary image.

5.   Define histogram processing.

6.   Define image filtering.

7.   Define spatial domain.

8.   Define saturation in digital image.

9.   Define image restoration.

10.   List down the various geometric transformation.

11. Difference between unconstrained and constrained restoration.

12. Define edge detection.

13. Define indirect graph.

14. Write any two image compression models.

15. Define segmentation.

16. What is meant by thresholding?

17. What is the purpose of source decoder?

18. What is the context in which run length coding would be efficient?

19. What are shift codes?

20. Write any two example for lossy compression techniques.

SECTION B — (5 × 4 = 20 marks)

21. (a) Write short note on image sampling.

Or

(b) Discuss the basic concept of quantization.

22. (a) Explain in detail about smoothing spatial filters.

Or

(b) Explain any one gray level transformation method.

23. (a) Explain the basic operations of geometric mean filter.

Or

(b) With a neat diagram explain in detail noise models of a Image restoration.

24. (a) Describe various lossy image compression methods.

Or

(b) Write short on image compression standards.

25. (a) Describe various edge linking and boundary deduction methods.

Or

(b) Write short note on segmentation by morphological water sheds.

SECTION C — (5 × 12 = 60 marks)

26. (a) Explain the various elements of digital image processing systems with a suitable diagram.

Or

(b) State and explain various methods in image sensing and acquisition.

27. (a) Discuss following histogram techniques for image enhancement

(i) Histogram specification

(ii) Local enhancement.

Or

(b) Describe the features of sharpening spatial filters.

28. (a) Explain in detail about inverse filtering.

Or

(b) Distinguish between spatial domain techniques and frequency domain techniques.

29. (a) Explain about error free compression.

Or

(b) Explain in detail about elements of information theory.

30. (a) Explain in detail the thresholding selection.

Or

(b) Describe the features of region based image segmentation.

_____

D 1103   Q.P. Code : [04 DMCA 31]

(For the candidates admitted from 2004 to 2007 calendar year)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

Fifth Semester

Elective/ Core — DATA MINING AND WAREHOUSING

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

SECTION A — (20 × 1 = 20 marks)

1.   What are the basic data mining issues?

2.   What are data mining metrics?

3.   Define decision tree.

4.   Write the data mining techniques.

5.   Write one of the data mining algorithms?

6.   What is clustering?

7.   What are the rules to measure the quality?

8. Define OLTP.

9. Define OLAP.

10. Write one of the data ware housing, architectural strategies.

11. What are the applications in data ware housing?

12. Write the applications in data mining.

13. Data cube is defined by ——————

14. A HOLAP server combines ——————

15. Define data classification.

16. For what purpose Apriori algorithm is used.

17. Give example of association rule mining.

18. Birch stands for ——————

19. Smoothing is form of ——————

20. What are types of hierarchical clustering?

SECTION B — (5 × 4 = 20 marks)

21. (a) Briefly explain any two functionalities of data mining.

Or

(b) Define data preprocessing and data clearing.

22. (a) Explain the various views available while designing Data Warehouse.

Or

(b) Explain in detail Data Reduction.

23. (a) Brief about similarity and Distance Measures.

Or

(b) Briefly explain the advanced association rules

24. (a) What are the different types of data in cluster analysis?

Or

(b) What is BIRCH and ROCK?

25. (a) List out any four applications of data ware housing and data mining.

Or

(b) List out any two tools used for data warehousing and brief about them.

SECTION C — (5 × 12 = 60 marks)

26. (a) Explain in detail about a statistical perspective on data mining.

Or

(b) Explain data mining from a database perspective.

2   D 1103

3   D 1103

27. (a) Write algorithm for k-means and explain intermediate steps.

Or

(b) List out various clustering techniques and explain any two of them.

28. (a) Explain how to generate association rules frequent item sets. And give short notes how to improve the efficiency of Aproiri.

Or

(b) Explain in detail about Classification and Prediction.

29. (a) List out the characteristics of a data ware house and explain any three of them.

Or

(b) Discuss in detail about OLTP and OLAP systems.

30. (a) Explain Spatial Data mining.

Or

(b) Explain crucial decisions in designing data warehouse.

———

D 1104 Q.P. Code : [05 DMCA 16]

(For the candidates admitted from 2005 to 2007
calendar year)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

Fourth Semester

VISUAL PROGRAMMING

Time : Three hours Maximum : 100 marks

SECTION A — (20 × 1 = 20 marks)
Answer ALL questions.
All questions carry equal marks.

1. What is meant by event procedure?

2. How do you place controls to a form?

3. List some properties of form.

4. How do you resize controls?

5. How do you join strings in VB.Net?

6. What is the corresponding data type in VB.Net for variant in VB?

7. Give the use of message box.

8. Which is the base class for All Built in controls?

9. How do run batch file from VB.Net.

10. Define Class.

11. Mention the use of Dialog boxes.

12. Give the uses of Directory class.

13. What is MFC?

14. List the use of Bitmaps.

15. What is a Resource?

16. List the properties of C String class.

17. What is DAO?

18. Mention the uses of APWIZARD.

19. Define the term Thread.

20. What is meant by Multitasking?

SECTION B — (5 × 4 = 20 marks)

Answer ALL the questions.

All questions carry equal marks.

21. (a) Explain the setting properties of Forms.

Or

(b) Explain the applications of VB.Net.

22. (a) Explain any five Data Types ued in VB.Net.

Or

(b) Explain the Nested Loops used in VB.Net.

23. (a) Explain the procedure for creating Menus in VB.Net.

Or

(b) Write a note on arrays.

24. (a) Write about CArchive.

Or

(b) Explain Message maps.

25. (a) Explain about Multitasking.

Or

(b) Write note on Class Wizard.

SECTION C — (5 × 12 = 60 marks)

Answer ALL the questions.

All questions carry equal marks.

26. (a) Explain the Following :

(i) Auto Hide (4)

(ii) Selecting and Resizing Controls (8)

Or

(b) Explain the Properties Windows and Selecting Properties of Controls.

4 D 1104

27. (a) Explain about Conditional Statements and Looping.

Or

(b) Explain User Defined and Built-in Functions.

28. (a) Explain the Following.

(i) Structured programming (6)

(ii) Object oriented programming (6)

Or

(b) Discuss about File processing.

29. (a) Discuss the following classes.

(i) CObject (4)

(ii) CWinApp (4)

(iii) CWnd (4)

Or

(b) Explain the Resources used in VB.Net in detail.

5 D 1104

30. (a) Explain the Thread Based Multitasking.

Or

(b) Briefly discuss about ODBC.

———————

D 1105 Q.P. Code : [05 DMCA 17]

(For the candidates admitted from 2005 to 2007
calendar year)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

Fourth Semester

JAVA PROGRAMMING

Time : Three hours Maximum : 100 marks

Answer ALL questions.

SECTION A — (20 × 1 = 20 marks)

1. _____ means handling multiple tasks simultaneously.

2. _____ tool helps us to run java applet.

3. AWT stands for _____.

4. The process of compiling a Java program into byte code is also referred as _____.

5. _____ is used when objects are required to perform similar tasks but using different input parameters.

6. _____, _____ and _____ are the three types of visibility modifiers in Java.

7. _____ method is used to convert integer data to string.

8. Packages are _____.

9. The syntax to create a string data type is _____.

10. _____ is used to position and place the components in the desired location and style in a container.

11. A frame is _____.

12. A java exception is an instance of a class derived from _____.

13. Swing is _____.

14. A _____ is a flow of exception of a task in a program, which has a beginning and an end.

15. Using _____ we can read or write a bulk of bytes or characters at a time instead of single byte or character.

16. Random Access File class allows _____.

17. _____ is the ability of an object to record its state, that it can be uploaded in the future.

18. _____ is the server side constructs that interfaces with the server side RRL.

19. _____ are chunks of text sent form a server to a web browser that the browser can return subsequent transactions.

20. MIME stands for _____.

SECTION B — (5 × 4 = 20 marks)

21. (a) Describe the features of JAVA.

Or

(b) With example, explain break and continue statements.

22. (a) What are the applications of wrapper class?

Or

(b) What are objects? How are they created?

23. (a) How does String Tokenizer class differs from String Buffer class?

Or

(b) Describe the three ways of drawing polygons.

24. (a) How do you throw an exception? Explain with example.

Or

(b) What are the differences between byte streams and character streams?

25. (a) How a web server handles HTTP requests?

Or

(b) Write about socket in networking.

SECTION C — (5 × 12 = 60 marks)

26. (a) (i) Describe the structure of typical Java program.

(ii) Write a program to compute the sum of the digits of a given number.

Or

(b) (i) List and explain about the various data types supported by Java.

(ii) Differentiate between entry controlled loop and exit controlled loop structures.

27. (a) What is constructor? Explain its invoking procedure.

Or

(b) What is a package? Explain its design procedure.

28. (a) Write a Java program which will read a text and count all occurrences of a particular word.

Or

(b) (i) Briefly explain the benefits of swing.

(ii) What methods do you use to detect mouse movements?

29. (a) (i) Describe the life cycle of a thread object.

(ii) What is a thread group? How do you create thread group?

Or

(b) Write a Java program to count the number of lines, words and characters present in a text file.

30. (a) With a neat diagram, explain the architecture of RMI.

Or

(b) Explain in detail the various methods used for tracking a session.

———————

D 1106   Q.P. Code : [05 DMCA 18]

(For the candidates admitted from 2005 to 2007
calendar year)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

Fourth Semester

Elective — MULTIMEDIA AND ITS APPLICATION

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

SECTION A — (20 × 1 = 20 marks)

1.   What is multimedia?

2.   What is the basic software tools used in
     multimedia?

3.   What is the need to making multimedia?

4.   What are the platforms used in multimedia?

5.   What is macintosh?

6. What is mean by DVD?

7. List out the multimedia authorizing tools.

8. What are the multimedia building blocks?

9. MAN stands for ——————.

10. Compare multimedia and internet.

11. What are tools used for WWW?

12. Define image.

13. DDE expands ——————.

14. List the role of sound editing tools.

15. What do you mean by desktop computing?

16. PAL means ——————.

17. JPEG stands for ——————.

18. Define bandwidth.

19. What is Bitmap?

20. HDTV stands for ——————.

SECTION B — (5 × 4 = 20 marks)

21. (a) Explain the basic software tools used in multimedia.

Or

(b) List out the any 4 applications of multimedia.

22. (a) Discuss in detail on video and digital movie tools.

Or

(b) Discuss in detail about multimedia building blocks.

23. (a) Briefly explain about the Text fonts.

Or

(b) Discuss the principles of animation.

24. (a) Explain Image File Formats.

Or

(b) Distinguish between MIDI and Digital Audio.

25. (a) Explain the knowledge based multimedia systems.

Or

(b) Brief the design procedure for-WWW.

SECTION C — (5 × 12 = 60 marks)

26. (a) Explain the stages involved in developing a project.

    Or

    (b) Explain in detail about presentation tools.

27. (a) Explain about the memory hierarchy in detail.

    Or

    (b) List out the techniques for shooting video for multimedia project.

28. (a) Explain Audio File Formats.

    Or

    (b) Explain about working procedure of the Internet.

29. (a) Compare and contrast about high Definition Television and desktop computing.

    Or

    (b) Explain how animation is helpful for designing Web.

30. (a) Discuss the principles of animation.

    Or

    (b) Explain in detail about color palates.

———————

D 1107 Q.P. Code : [05 DMCA 19]

(For the candidates admitted from 2005 - 2007 calendar year)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

Fifth Semester

SOFTWARE ENGINEERING

Time : Three hours Maximum : 100 marks

Answer ALL questions.

All questions carry equal marks.

SECTION A — (20 × 1 = 20 marks)

Give short answers (1 - 5)

1. Software delivers the most important product of our time ———————— what is it?

2. What is known as information flow?

3. Give an example of a work product in the design process.

4. What are the steps in user interface design?

5. Define a graph matrix.

Fill in the blanks (6 - 10)

6. ——————— is developed or engineered, it is not manufactured in the classical sense.

7. The elements of data modeling are ———————.

8. The ——————— design describes how the software communicates within itself.

9. The ——————— model establishes the profile of end users of the system.

10. A flow graph is also called as ———————.

Say True/False (11 - 15)

11. System software is a collection of programs written to service other programs.

12. The close-ended approach is called evolutionary prototyping.

13. Software design is both a process and model.

14. Six different models come into play when a user interface is to be designed.

15. The beta test is conducted at the developers' site by a customer.

Match the following (16 - 20)

16. Software engineering   (a)   Design issue

17. Requirements   (b)   Prototype is created
    specification

18. Stepwise refinement   (c)   Debugging approach

19. After the design model   (d)   A top-down design

20. Backtracking   (e)   A layered technology

SECTION B — (5 × 4 = 20 marks)

21. (a) Describe the RAD model.

Or

    (b) Discuss the issues associated with determination of software scope.

22. (a) Explain the specification principles in detail.

Or

    (b) Explain the elements of analysis model.

23. (a) How the abstraction concept helpful for software design?

Or

(b) Write short notes on :
Transform mapping.

24. (a) Write short notes on :
Program design language.

Or

(b) What are the components of the system design process? Explain.

25. (a) What are testing objectives? Explain.

Or

(b) What is white-box testing? Explain.

SECTION C — (5 × 12 = 60 marks)

26. (a) Explain the COCOMO software estimation model.

Or

(b) Discuss the problem-based and process based techniques for estimating a project.

27. (a) Explain in detail about the analysis principles.

Or

(b) Explain in detail about software prototyping.

28. (a) Explain in detail about the design steps for transaction mapping.

Or

(b) Explain the design concepts in detail.

29. (a) Discuss the design for object-oriented systems.

Or

(b) Discuss the issues related to structured programming.

30. (a) How integration testing is conducted? Explain.

Or

(b) Explain in detail about validation testing.

———

D 1108   Q.P. Code : [05 DMCA 20]

(For the candidates admitted from 2005 to 2007
calendar year)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

Fifth Semester

INTERNET AND WEB PROGRAMMING

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

SECTION A — (20 × 1 = 20 marks)

1. Define hypertext.

2. What does the special character   refer to in a HTML document?

3. Which tag helps in specifying a bookmark in a HTML document?

4. What is an image map?

5. Is JavaScript a client/server-side scripting language?

6. What are the three logical operators used in JavaScript?

7. What is the use of embedding a java script in an HTML page?

8. ——————— and ——————— are the logical operators in Java Script, respectively for AND and OR operations.

9. How is a global variable declared in a function of a Java Script?

10. What is the function used in Java Script to display message in a processed HTML output page?

11. What are the types of arrays in Java Script?

12. ——————— event in an image tag of JavaScript triggers the event when an user moves the mouse over an object.

13. DHTML = ———————+HTML+———————.

14. How to include a style information in an HTML document where the style needs to be applied?

15. Is 'onblur' event a part of core event model?

2   D 1108

16. JavaScript and ——————— are client-side scripting languages.

17. Is CGI a server side or client side script?

18. What is a ADO recordset?

19. What is a web cookie?

20. What is the number of bits required to represent a character in unicode?

SECTION B — (5 × 4 = 20 marks)

21. (a) List the HTML tags used in creating a table in the document.

Or

(b) Give any two advantages of using frames in a web document.

22. (a) Give a suitable example for 'for' control structure in JavaScript.

Or

(b) Distinguish between the characteristics of recursion and iteration.

3   D 1108

23. (a) What are the functions done by the JavaScript methods 'alert' and 'focus' on the object 'frame'?

Or

(b) List some disadvantages of inline styles in CSS.

24. (a) What are the events supported in DHTML event model for mouse operations?

Or

(b) What is the use of chroma and wave filters in DHTML documents?

25. (a) Enumerate the requirements for Active Server Pages.

Or

(b) Write a brief note on server side includes

SECTION C — (5 × 12 = 60 marks)

26. (a) (i) Discuss the evolution and the services provided by the world wide web in detail. (6)

(ii) Explain the options for linking images and other documents from a HTML document. (6)

Or

(b) Describe the form processing capabilities of HTML with a suitable example. (12)

27. (a) Demonstrate the use of the following JavaScript control structures with suitable examples: do-while; break-continue and switch multiple case Values. (12)

Or

(b) Write a JavaScript program that solves the Towers of Hanoi problem using recursion. (12)

28. (a) Explain the syntax and the functions of any six methods in JavaScript for the following math applications: arithmetic and trigonometric. (12)

Or

(b) What is a CSS box model? Illustrate with an example how the margins, padding and borders interact. (12)

29. (a) Write brief notes on DHTML DOM, event bubbling and event cancelling. (12)

Or

(b) Enumerate the various transition effects supported by browsers for dynamic HTML and list the appropriate methods for bringing those effects in a DHTML document. (12)

30. (a) What is an ASP file? List and explain the standard objects used in ASP. (12)

Or

(b) What is a Document Type Definition? Illustrate the use of DTD with an example application for a bookstore. (12)

———————

D 1119   Q.P. Code : [07 DMCA 01]

(For the candidates admitted from 2007 onwards)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

First Year

COMPUTER ORGANIZATION AND ARCHITECTURE

Time : Three hours   Maximum : 100 marks

Answer any FIVE questions.

Each question carries 20 marks.

$(5 \times 20 = 100)$

1. Convert the following representation from one number system to the other system.

   (a) $(41.6875)_{10}$ to binary

   (b) $(153.513)_{10}$ to octal

   (c) $(1365F)_{16}$ to decimal

   (d) $(630.4)_8$ to decimal.

2. Simplify the following Boolean expression using Karnaugh map method and find the complement of F.

$$F(A, B, C, D) = \sum (1, 3, 7, 11, 15)$$

$$d(A, B, C, D) = \sum (0, 2, 5).$$

3. Write short notes on the following :

(a) Multiplier

(b) Demultiplexer

(c) Decoder

(d) Encoder.

4. With a neat logic diagram and timing diagram explain the hashing principle of BCD Appl. counter.

5. Discuss in detail the different addressing modes with relevant example.

6. Briefly explain about the different program control instructions available.

7. Explain the process of asynchronous data transfer and elaborate on stroke and handshaking methods.

8. Elaborate on the following cache memory mapping technique.

(a) Associative mapping

(b) Direct mapping

(c) Set-associative mapping.

D 1120 Q.P. Code : [07 DMCA 02]

(For the candidates admitted from 2007 onwards)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

First Year

PROBLEM SOLVING IN C AND DATA STRUCTURES

Time : Three hours Maximum : 100 marks

Answer any FIVE questions.

Each question carries 20 marks.

(5 × 20 = 100)

1. (a) Discuss various types of operators available in C. (10)

    (b) Give the syntax for printf( ) and fprintf( ). (5)

    (c) Write the advantages of structured programming. (5)

2. (a) Define FILE data structure. Write a C program for merging of two files using C language. (10)

    (b) Define Recursion. Write a C program to find factorial using recursion. (10)

3. (a) Give any five characteristics of an algorithm. (5)

(b) Convert the following infix to postfix notation.

(i) $(a + (b * d) + 3) \wedge 7$

(ii) $(a * a + (A + d) + 3) + 10$. (10)

(c) How sparse matrix is represented using linked list. (5)

4. (a) Explain any two applications of Binary tree. (10)

(b) Write the procedure for Doubly Linked List. (10)

5. (a) Explain transitive closure of a graph with an example. (10)

(b) Discuss binary tree traversal techniques. (10)

6. Write Quick sort procedure. Using Quick sort arrange the following numbers in ascending order 10, 100, 23, 34, 13, 22, 11, 30, 35, 36. Show its necessary time complexity. (20)

7. Explain Different types of algorithm analysis techniques with an example. (20)

8. Write short notes on following : (20)

(a) Storage classes

(b) All pair shortest path algorithm

(c) Pointers

(d) Self referential structures.

———————

Reg. No. : ....

D 1121   **Q.P. Code : [07 DMCA 03]**

(For the candidates admitted from 2007 onwards)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

First Year

RELATIONAL DATABASE MANAGEMENT SYSTEM

Time : Three hours   Maximum : 100 marks

Answer any FIVE questions.

Each question carries 20 marks.

$(5 \times 20 = 100)$

1. (a) Compare file processing systems with database system.   (10)

    (b) Define entity, relationship, super key, candidate key, and foreign key.   (10)

2. (a) Explain DBMS architecture with neat block diagram.   (10)

    (b) Draw E-R Diagram for bank ATM system.   (10)

3. Explain various operations of Relational algebra with suitable example.   (20)

4. (a) Explain view, synonym, index and sequence with an example.   (10)

    (b) What are the SQL triggers? Give an example.   (10)

5. (a) Explain ACID properties of transaction management in detail.   (10)

    (b) Define 1NF, 2NF, 3NF, 4NF, 5NF.   (10)

6. (a) Explain two phase locking protocol in detail.   (10)

    (b) Write short notes on database security.   (05)

    (c) What is serializability?   (05)

7. (a) Discuss any one data recovery mechanism with an example.   (10)

    (b) Describe concurrency control mechanism in database management.   (10)

8. Write short notes on following :

    (a) Join dependency   (5)

    (b) Relational calculus   (5)

    (c) Parallel databases   (5)

    (d) OODBMS.   (5)

———————

Reg. No. : ....

D 1122   Q.P. Code : [07 DMCA 04]

(For the candidates admitted from 2007 onwards)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

First Year

ANALYSIS AND DESIGN OF INFORMATION
SYSTEM

Time : Three hours   Maximum : 100 marks

Answer any FIVE questions.

Each question carries 20 marks.

(5 × 20 = 100)

1. Consider Hospital Management System, analyze and state the various types of information that are to be managed and maintained. And also explain the managing structure and their functionalities.

2. With a neat diagram, explain the various phases involved in designing an information system.

3. (a) Explain the various types of information gathering methods for computerizing the environment.

   (b) State the necessity and guidelines for interviewing.

4. Briefly explain the various steps involved in system and feasibility analysis.

5. Draw and explain the Data flow diagram for computerized banking system. Name all data flows, processes and data stores and also indicate system inputs and outputs.

6. (a) Explain the various process specification methods

   (b) How K-maps are used to detect logical errors in decision tables? Explain.

7. (a) State the objectives of designing input and output specifications.

   (b) Briefly discuss about input validation.

8. (a) In what ways does an audit trail safeguard both data and organization in an online banking system? Explain.

   (b) What are the different levels of system testing? Explain each.

Reg. No. : ....

D 1123   Q.P. Code : [07 DMCA 05]

(For the candidates admitted from 2007 onwards)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

First Year

OPERATING SYSTEM

Time : Three hours   Maximum : 100 marks

Answer any FIVE questions.

Each question carries 20 marks.

(5 × 20 = 100)

1. (a) List out the various advantages and disadvantages of mainframe systems.   (10)

    (b) Write short notes on virtual machines.   (10)

2. (a) Discuss different process states.   (10)

    (b) Compare shared memory and Inter process communication.   (5)

    (c) Give the important features of Real time operating systems.   (5)

3. Explain different CPU scheduling algorithms with an example.   (20)

4. (a) What are the important characteristics of Deadlock?   (5)

    (b) Explain how banker's algorithm is used to avoid deadlock?   (15)

5. (a) Explain Paging memory management in detail.   (10)

    (b) Discuss any one page replacement algorithm with an example.   (10)

6. (a) Define seek time and latency time   (5)

    (b) Discuss any three disk scheduling algorithms with suitable example.   (15)

7. (a) Write short notes on file accessing methods.   (10)

    (b) What is directory structure? Explain DAG file structure in detail.   (10)

8. Write short notes on following.

    (a) File recovery.   (5)

    (b) Shell programming.   (5)

    (c) Windows 2000.   (5)

    (d) SPOOLING.   (5)

———————

Reg. No. : ....

D 1109   Q.P. Code : [07 DMCA 06]

(For the candidates admitted from 2007 onwards)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

Second Year

OOPS USING C++ AND JAVA PROGRAMMING

Time : Three hours   Maximum : 100 marks

Answer any FIVE questions.

Each questions carries 20 marks.

1. (a) Illustrate the benefits of object oriented programming approach over the traditional approach.   (10)

    (b) Differentiate between data encapsulation and data abstraction.   (4)

    (c) Describe the process of finding class and objects with suitable examples.   (6)

2. (a) Explain constructor and destructor functions with examples.   (8)

    (b) What is meant by operator overloading? Write a C++ program for overloading the binary operator '+'.   (8)

    (c) Explain copy constructor with an example. (4)

3. (a) Explain multiple and multi-level inheritance with suitable examples.   (8)

    (b) Differentiate   inheritance   from polymorphism.   (4)

    (c) Explain dynamic binding with an example. (8)

4. (a) What is virtual function? Explain.   (8)

    (b) Describe the concept of polymorphism, with a typical program.   (8)

    (c) What is meant by exception handling?   (4)

5. (a) Compare and contrast Java with C++.   (10)

    (b) Write a Java program for explaining the methods overloading concept.   (10)

6. (a) Briefly explain the applications of wrapper classes.   (5)

    (b) Explain in detail about AWT controls in Java.   (15)

7. (a) Explain the states of a thread during its life cycle with neat state transition diagram. (10)

    (b) Explain how to create threads in Java with an example.   (10)

8. (a) Explain about try and catch in exception handling.   (8)

    (b) Explain applet with an example program. (8)

    (c) Mention the purpose of JDBC. What are its merits? _____   (4)

2   D 1109

Reg. No. : ....

D 1110   Q.P. Code : [07 DMCA 07]

(For the candidates admitted from 2007 onwards)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

Second Year

COMPUTER NETWORKS

Time : Three hours   Maximum : 100 marks

Answer any FIVE questions.

Each question carries 20 marks.

(5 × 20 = 100)

1. (a) List out the various applications of computer networks.   (10)

    (b) Compare OSI and TCP/IP reference models.   (10)

2. (a) What is the principle difference between connectionless communication and connection oriented communication?   (10)

    (b) Define peer to peer network, unicasting, multicasting and distributed networks.   (10)

3. Discuss various communication media in detail.   (20)

4. (a) Explain CRC error detection code with suitable example.   (10)

    (b) Describe Differential Manchester encoding technique with an example.   (10)

5. (a) Explain CSMA / CD with binary exponential back-off.   (10)

    (b) What is character stuffing? Explain with an example.   (10)

6. (a) Explain distance vector routing algorithm with an example.   (10)

    (b) Discuss various functions of session layer. (5)

    (c) What is stop-and-wait protocol? Give its advantages.   (5)

7. (a) Write short notes on Quality of service.   (10)

    (b) Discuss any one congestion control techniques in detail.   (10)

8. Write short notes on following :

    (a) Session layer   (5)

    (b) cryptography   (5)

    (c) IP address   (5)

    (d) Quality factors of software   (5)

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Reg. No. : ....

D 1111 Q.P. Code : [07 DMCA 08]

(For the candidates admitted from 2007 onwards)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

Second Year

SOFTWARE ENGINEERING

Time : Three hours Maximum : 100 marks

Answer any FIVE questions.

Each question carries 20 marks.

(5 × 20 = 100)

1. (a) Write short notes software crises and software myths. (10)

    (b) Discuss the advantages of layered approach in software development process. (10)

2. Explain different types of data modeling. Discuss any one of the data modeling with bank database as example. (20)

3. Discuss software project estimation techniques in detail. (20)

4. (a) Draw the dataflow diagram for Hospital management system. (10)

    (b) Explain spiral model for software development process. Give its various advantages and disadvantages. (10)

5. (a) Explain various design notations with an example. (10)

    (b) Define object and class. How object are identified in an object oriented design process. (10)

6. (a) Write short notes on software standards. (10)

    (b) How control structure testing is effectively handled in testing phase. Give an example. (10)

7. (a) Describe user interface design in detail. (10)

    (b) Write short notes on software security and software availability. (10)

8. Write short notes on following :

    (a) Critical systems (5)

    (b) Software re-engineering (5)

    (c) CASE tools (5)

    (d) Quality factors of software (5)

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2 D 1111

Reg. No. : ....

D 1112   Q.P. Code : [07 DMCA 09]

(For the candidates admitted from 2007 onwards)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

Second Year

VISUAL PROGRAMMING

Time : Three hours   Maximum : 100 marks

Answer any FIVE questions.

Each question carries 20 marks.

(5 × 20 = 100)

1. (a) State and explain the various data types and branching structures supported by Visual Basic. (10)

    (b) List and explain the intrinsic controls in VB NET. (10)

2. (a) Write a VB program to find the average of marks and print the grade for the students, given the student number, name and marks for 5 subjects. If average marks >=60 print the grade as "A" and if the average >=50 and <60 print the grade as "B" for the rest of the cases print the grade as "C". (10)

    (b) Write about the graphics methods in VB. (10)

3. What is a form? List and explain the properties, events and methods used for describing any objects or form. (20)

4. (a) List the importance of Naming controls in VB. (10)

    (b) What are the different types of dialog boxes supported by VB? Explain. (10)

5. (a) Write detailed notes on various types of file controls that can be used in VB. (10)

    (b) Create an employee database and write a VB application to perform the operations such as addition, modification and deletion of records in the database. (10)

6. (a) How MFC creates threads? Explain. (10)

    (b) What are the member functions of C Archive and C Dialog classes? Explain. (10)

7. (a) Compare and contrast SDI and MDI applications. (10)

    (b) What is Document/View architecture? Explain how different views for a document are created. (10)

8. (a) Explain in detail the steps involved in building DAO application. (10)

    (b) What is ODBC? Explain its advantages. (10)

D 1113   Q.P. Code : [07 DMCA 10]

(For the candidates admitted from 2007 onwards)

M.C.A DEGREE EXAMINATION, DECEMBER 2010.

Elective : Second Year

E-COMMERCE

Time : Three Hours   Maximum : 100 marks

$(5 \times 20 = 100)$

Answer any FIVE questions.

Each question carry 20 marks.

1. (a) Explain in detail about the anatomy of e-commerce applications.   (10)

    (b) Write in detail why student to learn the e-commerce concept to all types of business systems?   (10)

2. (a) Explain about WWW as architecture for e-commerce.   (10)

    (b) Explain in detail about various consumer oriented applications.   (10)

3. (a) Write in detail about the technology behind web security and the web. (10)

(b) Outline the Mercantile model from the Merchant's perspective. (10)

4. (a) Explain about smart cards and electronic payment systems. (10)

(b) What is the risk in electronic payment system? Explain in detail. (10)

5. (a) What is Digital token based electronic payment system? Discuss in detail. (10)

(b) Discuss the various EDI applications in business. (10)

6. (a) Explain in detail about macro forces and internal commerce. (10)

(b) Briefly explain in detail about supply chain commerce system. (10)

7. (a) Explain the issues behind document infrastructure. (10)

(b) What is customization and internal commerce? Explain it. (10)

8. (a) How can we advertise on the Internet? Explain in detail. (10)

(b) Explain in detail about consumer data Internet emerging tools. (10)

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Reg. No. : ....

D 1114   **Q.P. Code : [07 DMCA 11]**

(For the candidates admitted from 2007 onwards)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

Second Year

Elective – CLIENT SERVER TECHNOLOGY

Time : Three hours   Maximum : 100 marks

(5 × 20 = 100 marks)

Answer any FIVE questions.

1. Describe the services of any five servers.   (20)

2. (a) Describe the anatomy of a server program.
   (10)

   (b) What does a server need from an operating system? Explain.   (10)

3. (a) Discuss about Peer-to-Peer communications.
   (10)

   (b) Compare MOM and RPC.   (10)

4. (a) Explain the compound document framework.
   (10)

   (b) Briefly discuss about component of Groupware.   (10)

5. (a) Describe the OLE's constituent technologies
   (10)

   (b) Discuss about the distributed component object model (DCOM).   (10)

6. (a) Explain stored procedure, triggers and rules.
   (10)

   (b) Explain the uses of OLTP, DSS, EIS and data warehouse systems.   (10)

7. (a) Describe any two SQL database server architectures.   (10)

   (b) Discuss the various elements of a data warehousing system.   (10)

8. (a) Describe the 3-tier client/serer web style. (10)

   (b) Describe the CORBA object web.   (10)

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D 1115   Q.P. Code : [07 DMCA 12]

(For the candidates admitted from 2007 onwards)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

Second Year

Elective – MULTIMEDIA AND ITS APPLICATIONS

Time : Three hours   Maximum : 100 marks

Answer any FIVE questions choosing atleast one full question from each unit.

UNIT I

1. (a) Describe various business applications for multimedia.   (8)

    (b) Write brief note on MCI.   (4)

    (c) Explain basic multimedia software tools.   (8)

UNIT II

2. (a) Explain Icon–based and time–based multimedia authoring tools in detail.   (10)

    (b) Write notes on Audio file formats.   (5)

    (c) How to map text across platforms? Explain.   (5)

3. (a) Explain in detail how to make, record and edit sounds in multimedia. (10)

   (b) Explain the various types of authoring tools for organizing multimedia elements and events. (10)

UNIT III

4. (a) Discuss about the different types of still images used in multimedia. (10)

   (b) Elaborate the role of animation in multimedia. (10)

5. (a) Compare bitmaps with vector–drawn objects. (5)

   (b) Explain the following video compression techniques :

   (i) JPEG (5)

   (ii) MPEG (5)

   (iii) DVI (5)

UNIT IV

6. (a) Explain the features of Internet useful in developing multimedia for www. (10)

   (b) Explain the role of plug–ins in detail. (10)

7. (a) Explain the various Internet services available with their purpose. (10)

   (b) Describe essential multimedia tools for World Wide Web. (10)

UNIT V

8. (a) What is HDTV? Explain. (8)

   (b) Explain briefly on viewing condition. (4)

   (c) Describe knowledge based multimedia systems. (8)

Reg. No. : ....

D 1116   Q.P. Code : [07 DMCA 13]

(For the candidates admitted from 2007 onwards)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

Third Year

SOFTWARE TESTING

Time : Three hours   Maximum : 100 marks

Answer any FIVE questions.

Each question carries 20 marks.

1. Explain with an example the K-V charts and their various forms. (20)

2. What is Syntax Testing? Explain the various categories of Test cases. (20)

3. Discuss Top Down testing and Bottom Up testing. (20)

4. (a) Discuss the debugging with Brute force method. (10)

   (b) State the principles of Debugging. (10)

5. Explain :

   (a) Application of Path Testing. (7)

   (b) Remedies for Test bugs. (5)

   (c) Importance of bugs. (8)

6. Briefly Explain the Control flow graphs with an example. (20)

7. (a) Discuss the Transaction Flow junction and mergers. (8)

   (b) Explain the Transaction Flow Techniques. (12)

   (a) Discuss the Goals of Testing. (5)

   (b) Discuss the structural bugs with suitable example. (15)

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Reg. No. : ....

D 1117 Q.P. Code : [07 DMCA 14]

(For the candidates admitted from 2007 onwards)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

Third Year

DATA MINING AND WAREHOUSING

Time : Three hours Maximum : 100 marks

Answer any FIVE questions.

Each question carries 20 marks.

(5 × 20 = 100)

1. Explain the available data mining techniques. (20)

2. (a) With an example explain the algorithm for decision tree induction. (10)

    (b) With an example explain the Hunt's algorithm. (10)

3. Discuss the characteristics of Decision tree induction with a suitable example. (20)

4. With a neat diagram explain the architecture of Data warehouse. (20)

5. (a) Explain in detail about the parallel and distributed algorithm. (10)

    (b) Discuss why and how to build a data warehouse? (10)

6. (a) How can we measure the quality of rules? (10)

    (b) Discuss Data mining and KDD in Databases (10)

7. Explain the following :

    (a) Neural Networks (10)

    (b) Genetic algorithm (10)

8. Is data warehouse and data mining have extensive potential applications in the Government? Discuss (20)

Reg. No. : ....

D 1118   **Q.P. Code : [07 DMCA 15]**

(For the candidates admitted from 2007 onwards)

M.C.A. DEGREE EXAMINATION, DECEMBER 2010.

Third Year

Elective — SOFTWARE PROJECT MANAGEMENT

Time : Three hours   Maximum : 100 marks

Answer any FIVE questions.

Each question carries 20 marks.

(5 × 20 = 100)

1. With a neat diagram explain the following model :
   (a) Waterfall model   (10)
   (b) Spiral model   (10)

2. Discuss the Risk management cycle, Tools and their Techniques.   (20)

3. Explain:
   (a) Three Phases of Estimation   (10)
   (b) Methodology of Estimation   (10)

4. (a) Describe the method for the cost estimation and cost budgeting for a project.   (12)
   (b) Describe the managing projects for the internet.   (08)

5. (a) State the advantages of using geographically distributed teams for the maintenance phase.   (10)
   (b) State the Metrices for the maintenance phase.   (10)

6. Briefly explain the skill sets for design and development Metrices for design and development phases.   (20)

7. (a) State the dimensions of requirements during gathering of quality records.   (12)
   (b) Discuss the inputs and start criteria for requirements gathering.   (8)

8. With a neat diagram briefly explain the Project life cycle model.   (20)

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