Total No. of Questions : 4]

SEAT No. : ____

P3295

[Total No. of Pages : 2

[4766] - 1001
M.C.A. (Commerce Faculty) (Semester - I)
101 : Fundamental of Information Technology
(Credit System) (2013 Pattern)

Time : 3 Hours] ***[Maximum Marks : 50***

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Figures to the right indicate full marks.***

Q1) Define and explain in brief any seven of the following : **[7 × 2 = 14]**

a) Types of Software
b) Scheduling and Synchronization
c) Binary Arithmetic
d) Refresh Cathode Ray Tube
e) Digital and Analog Transmission
f) External Storage devices
g) MAN
h) Threads

Q2) Discuss any Three of the following : **[3 × 4 = 12]**

a) Explain instruction set of 8085
b) Explain assembler in detail
c) Explain Flowchart Symbols
d) Explain any External Storage device

Q3) Discuss any Three of the following : **[3 × 4 = 12]**

a) Distinguish between high level and low level language
b) List all output devices and explain any one in detail
c) Explain the term topology and Explain Mesh topology in detail
d) Convert the following
AC7 to Decimal
10001 to Decimal

P.T.O.

Q4) Discuss any Three of the following : **[3 × 4 = 12]**

a) Explain Scheduling in operating system.

b) Draw flowchart to compute roots of quadratic equation.

c) Define the term Primary key and Also Explain Referential Integrity

d) What is a Protocol and Explain Communication Protocol.

♦♦♦♦

Total No. of Questions : 4] SEAT No. :

P3296 [Total No. of Pages : 3

[4766] - 1002
M. C. A. (Commerce Faculty) (Semester - I)
PROGRAMMING IN 'C'
(2013 Pattern)

Time : 3 Hours] *[Max. Marks : 50*

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Assume suitable data, if necessary.***

Q1) Attempt any seven : **[7 × 2 = 14]**

a) Define following :

i) Constants

ii) Variables

b) Explain the getchar () function.

c) How 'while' loop is different from 'do.....while' loop?

d) What do you mean by :

i) Local variables

ii) Global Variables

e) How we can combine two strings together? Explain with example.

f) Why structures are different from arrays?

g) Explain any one preprocessor directive.

h) Enlist various basic file operations used in C.

Q2) Attempt any three : **[3 × 4 = 12]**

a) Explain any two sections from 'Structure of C program' with suitable example.

b) Define and explain following functions.

i) break statement

ii) goto statement

P.T.O.

c) Write a short note on: recursion.

d) Trace the output :

```
#include<stdio.h>
void main ()
{
        int i=0;
        for( ; i<5;i++);
                printf("%d\n", i);
}
```

Q3) Attempt any three : **[3 × 4 = 12]**

a) Write a 'C' program to accept a mXn matrix and find the largest and smallest number from it using dynamic memory allocation.

b) Write a 'C' program to accept two strings from user and compare them without using standard library function.

c) Write a 'C' program to append to contents of one file at the end of another file.

d) Trace the output :

```
#include<stdio.h>
void main()
{
        int fun(int);
        int j, i=3;
        j=fun (fun (i));
        printf("%d\n", j);
}
int fun(int i)
{
        i++;
        return(i);
}
```

Q4) Attempt any three : **[3 × 4 = 12]**

a) Explain following string functions with suitable example.

i) strstr()

ii) strncpy()

b) How structures differs from Unions?

c) Explain fseek() and ftell() functions in detail.

d) Trace the output :

```
#include<stdio.h>
voidmain()
{
        float a []= {13.2, 2.3, 3.3, 8.2};
                printf("%d\n", sizeof(a)/sizeof(a[0]));
}
```

Total No. of Questions : 4] SEAT No. :

P3297 [Total No. of Pages : 3

[4766] - 1003
M.C.A. (Semester - I)
COMMERCE
Elements of Statistics (Part - I)
(2013 Pattern)

Time : 3 Hours] *[Max. Marks : 50*

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Figures to the right indicate full marks.***
3) ***Use of calculator and statistical tables is allowed.***

Q1) Attempt any TWO of the following: **[14]**

a) Find mode for the following frequency distribution.

Class	5-15	15-25	25-35	35-45	45-55
Frequency	2	9	18	7	4

Also draw histogram and verify mode graphically

b) Obtain correlation coefficient between sales(Y) and Number of sections (X) using following data:

X	3	7	6	6	10	12	12	13	12	13	14	15
Y	33	38	24	61	52	45	65	82	29	63	50	79

c) Given $n = 12$, $\Sigma X = 123$, $\Sigma Y = 621$, $\Sigma XY = 6833$, $\Sigma X^2 = 1421$. Obtain line of regression of Y on X. Also estimate Y when $X = 10$.

Q2) Attempt any TWO of the following: **[12]**

a) Explain the following terms.

i) Coefficient of variation

ii) Probability mass function

iii) Type I error

b) Number of runs scored by cricketers A and B in last 10 innings are shown below:

A	5	20	90	76	102	90	6	108	20	16
B	40	35	60	62	58	76	42	30	30	20

Find which cricketer is more consistent?

P.T.O.

c) Let X be a discrete random variable with p.m.f

$$P(X = x) = \frac{1}{5} \qquad x = 1,2,3,4,5$$

$$= 0 \qquad \text{otherwise.}$$

Find E(X) and V(X).

Q3) Attempt any THREE of the following: **[12]**

a) i) State probability mass function of binomial distribution.

ii) Let $X \rightarrow B(n,p)$. If $E(X) = 4$, $Var(X) = 3$, find n and p. Also find $P(X = 0)$.

b) Obtain quartile deviation for the following frequency distribution:

Income (00 Rs.)	14-16	16-18	18-20	20-22	22-24	24-26
No. of workers	12	30	55	40	35	28

c) Explain the procedure of x^2 test for goodness of fit.

d) A random sample of 27 pairs of observations from a normal population gives a correlation of 0.72. Is it likely that the variables in the population are uncorrelated? (Use 5% L.O.S., Given $t_{25} = 2.060$, $t_{26} = 2.056$, $t_{27} = 2.052$)

e) The following is 2 × 2 contingency table:

Father eye color ↓	Dark eye color in son	Light eye color in son
Dark eye color	23	15
Light eye color	15	47

Test whether the eye color in father in is associated with eye color in son? at 5% L.O.S. Given $\chi_1^2 = 3.81$, $\chi_2^2 = 5.99$, $\chi_3^2 = 7.81$

Q4) Attempt any THREE of the following: **[12]**

a) What do you mean by random variable? Explain the difference between discrete and continuous random variable with an illustration.

b) If X is a Normal variate with mean 30 and SD 5. Find

i) $P(26 \leq X \leq 40$

ii) $P(X \geq 45)$

c) 5 % housewives in Nashik do not use kerosene as a fuel. If a sample of 50 housewives is selected at random in Nashik, what will be the probability that 4 housewives in the sample do not use kerosene as a fuel. [given $e^{-2.5} = 0.218$]

d) A random sample of 100 recorded deaths in the united states during the last year showed an average life span of 71.8 years. Assuming population standard deviation of 8.9 years test the hypothesis that $\mu = 70$ years against $\mu \neq 70$ years at 5 % level of significance.

e) Find mean, median and mode for:
51, 58, 57,52,57.48,53

Total No. of Questions : 5]

SEAT No. :

P3298

[Total No. of Pages : 2

[4766] - 1004
M.C.A. (Commerce) (Semester - I)
104 : FINANCIAL ACCOUNTING
(Credit System) (2013 Pattern)

Time : 3 Hours] *[Max. Marks : 50*

Instructions to the candidates:

1) ***Question no. 1 is compulsory.***
2) ***Solve any Three questions from the remaining.***

.

Q1) The following Trial Balance was taken out on 31st March, 2015 from the Books of Bose. You are required to prepare a Trading and Profit and Loss Account for the year ended 31st March, 2015 and a Balance Sheet as at date, after making the necessary adjustments : **[14]**

Particulars	Dr. Rs.	Cr. Rs.
Wages and salaries	6,600	---
Capital account	---	34,600
Drawings	2,000	---
Purchases & Sales	18,000	26,000
Sales returns / Purchase return	300	460
Office furniture	4,000	---
Buildings	12,000	---
Advertisement	1300	---
Opening stock	5,000	---
Rent, rates and taxes	400	---
Commission	200	---
Bills receivable	800	---
Traveling expenses	600	---
Bad debts	190	---
Provision for doubtful debts	---	1,500
Sundry debtors / Sundry creditors	11,000	2,800
Cash in hand	1,800	---
Bank overdraft	---	1,300
Freight on purchases	260	---
Investments	2,000	---
Income from investments	---	590
Fuel and power (factory)	800	---
Total Rs.	67,250	67,250

P.T.O.

Adjustments :

a) Depreciation to be provided on building and furniture at 10%

b) Rent outstanding was Rs. 120.

c) Goods of the value of Rs. 100 were given away free as samples.

d) Closing stock was valued at Rs. 8,200.

Q2) Journalise the following transactions in the books of Victoria. **[12]**

a) Commenced business with goods worth Rs. 50,000/-.

b) Borrowed Rs.50,000/- from Sunita.

c) Deposited Rs.30,000/- with State Bank.

d) Goods sold to Veronica worth Rs.5,000/- and amount received by cheque.

e) Purchased goods worth Rs.50,000 - from M/s Akbar Ali on credit.

f) Placed an order with M/s Deewakar & Co. for goods worth Rs. 20,000/-.

g) Paid Life Insurance Premium of Victoria's policy Rs.500/-.

h) Paid Salaries Rs.1000 - Wages Rs.800/- and 'Telephone Charges Rs. 200/-.

Q3) Ashok limited purchased Machinery on 1st April 2011 for Rs. 50000/- Company decided to charge depreciation dy Written Down Value method @10% p.a. The company sold the machinery on 31st March 2014 for Rs.20000-. **[12]**

Prepare Machinery Account & Depreciation A/c.

Q4) What is Financial Accounting. Explain the scope & limitations. **[12]**

Q5) Write short notes on the following : (Any 3) **[12]**

a) Management Accounting:

b) ERP (Enterprise Resource Planning):

c) Importance of Accounting Standards

d) Money measurement concept:

e) Users of Financial Accounting.

⌘⌘⌘

Total No. of Questions : 6] **SEAT No. :**

P3299 **[Total No. of Pages : 2**

[4766]-1005

M.C.A (Commerce) SEMESTER - I

105 : Principles of Management

(2013 Pattern)

)Time : 2 Hours] *[Max. Marks : 50*

Instructions to the candidates:

1) ***Question No. 6 is Compulsory Question***
2) ***Attempt any 3 from 1 to 5***
3) ***Draw figures wherever necessary***

Q1) a) Define management.State it's Scope in Business with appropriate examples. **[7]**

b) Explain the roles of manager in detail for business. **[7]**

Q2) a) Explain in brief Modern Approach. Explain any one of the Approaches **[7]**

b) Henry Fayol's contribution in the field of management. **[7]**

Q3) a) Define Organizing. Explain types of organizations in detail **[7]**

b) Define the term Controlling and its techniques **[7]**

Q4) a) Define the term delegation of authority. Discuss the difficulties in delegation of authority. **[7]**

b) Motivation. Explain McClelland's need for achievement **[7]**

P.T.O.

Q5) a) "Doing things right or Right things doing", which is the right form of implementing Management. [7]

b) Application of strategic management in business organization. [7]

Q6) Short Notes (Any Two) [8]

a) Strategic Management

b) Staffing

c) Social responsibility of Management

d) Foresting v/s Planning.

Total No. of Questions : 4]

SEAT No. : ____

P3300

[Total No. of Pages : 2

[4766] - 1006
M.C.A. COMMERCE (Semester - I)
BUSINESS COMMUNICATION
(2013 Pattern)

Time : 3 Hours] ***[Maximum Marks : 50***

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Figures to the right side indicate full marks.***

Q1) What is Business letter? Explain in detail layout of Business letters. **[14]**

OR

Distinguish between Voice mail and Video conferencing. **[14]**

Q2) Define communication. Explain Barriers to communication and overcoming the Barriers. **[14]**

OR

What is listening? Explain in detail types of listening. **[14]**

Q3) a) Write a complaint letter to the sales Manager of M/S L.G. Electronics ltd. Gangadham Nashik from M/S sapnil sound Narayangaon Pune about sending wrong electronics goods. **[7]**

OR

b) i) Write the noun forms of given word. **[2]**

1) Succeed _____
2) Qualify _____

ii) Fill in the blanks with appropriate adverbs given in the bracket :- **[2]**

1) Ambition _____ (urge) me forward.
2) We were very _____ (kind) received.

iii) Define with suitable examples :- **[3]**

1) Verb
2) Interjection
3) Pronoun

P.T.O.

c) Draft an application to M/S Gajanan Company Limited Nagpur for the post of operating Manager. **[7]**

OR

d) i) Fill in the blanks with appropriate preposition :- **[2]**

1) He slept _____ eight o' clock.
2) The cat is _____ the kitchen.

ii) Write the Adjective forms of the following words : **[2]**

1) Hope _____
2) Sense _____

iii) Write the correct tense form :- **[3]**

1) The sun _____ (rise) in the east.
2) I _____ (write) the letter in his presence.
3) It has been _____ (rain) all night.

Q4) Write short notes (Any Two) **[8]**

a) Telex

b) Telegram

c) Negative gestures

d) Scope of business communication.

♦♦♦♦

Total No. of Questions : 5] **SEAT No. :**

P3270 **[Total No. of Pages : 2**

[4766] - 101
M.C.A. (Commerce Faculty) (Semester - I)
102 : SYSTEMS ORGANISATION AND MANAGEMENT
(2009 Pattern)

Time : 3 Hours] ***[Maximum Marks : 80***

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***All questions carry equal marks.***

Q1) Answer the following : (Any Four) **[16]**

a) Define Management. State characteristics of Management.

b) What is Directing?

c) Write difference between sales and marketing.

d) What is the information required by a personnel manager about system?

e) Write a note on SWOT Analysis.

Q2) Attempt any two of the following : **[16]**

a) What is Information and Technology? Write information required by each Level of Management.

b) "Information System Management is the backbone of Global Industry". Explain and prove.

c) What is Motivation? Write theory *x* and Theory *y* of Motivation.

Q3) Write short notes : (Any Four) **[16]**

a) Decision Support Systems (DSS)

b) Characteristics of Organisation

c) Expert systems

d) Formal and Informal Organisation

e) Software and Hardware.

P.T.O.

Q4) Attempt any four of the following : **[16]**

a) What is the role of Internet in system organisation.

b) Define customer relation management.

c) Write process of Decision - Making.

d) State Importance of Management.

e) Write a note on Effective Communication.

Q5) Write any two of the following : **[16]**

a) "Selection of right person, at right time and right place is staffing" Explain briefly.

b) What is MIS? State role of MIS in Business Organisation.

c) Define Leadership. What are the different types of Leadership that can be executed in an organisation?

♦♦♦♦

Total No. of Questions : 5] SEAT No. :

P3272 [Total No. of Pages : 3

[4766] - 103
M.C.A. (Commerce Faculty) (Semester - I)
STATISTICAL AND NUMERICAL METHODS
(2013 Pattern)

Time : 3 Hours] *[Max. Marks : 80*

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Figures to the right indicate full marks.***
3) ***Use of statistical tables and calculator is allowed.***
4) ***Symbols have their usual meanings.***

Q1) Attempt any **THREE** of the following: **[15]**

a) Find the root of the equation $x^2 - 9x + 1 = 0$ between [2,4] using Bisection Method. Perform three iterations.

b) Use Newton Raphson Method to find the roots of the equation $X^3 - 5X + 1 = 0$.

c) Show that $E[f(x)] = (1 + \Delta) f(x)$

d) Explain the procedure to find the root of the equation by Bisection Method graphically.

e) State i) Trapezoidal Rule ii) Simpsons $(3/8)^{th}$ Rule

Q2) Attempt any **THREE** of the following: **[15]**

a) Find the value of y at x = 5, given that:

X	1	3	4	8	10
Y	8	15	19	32	40

b) Explain Trapezoidal Rule and Simpsons (1/3) rule for Numerical Integration.

c) From the following table find the first and second order derivative at x =1 .5

X	0	0.5	1	1.5	2
Y	0.3989	0.3521	0.2420	0.1295	0.0540

P.T.O.

d) Find the solution of $\frac{dy}{dx} = 1 + XY$ which passes through (0,1) in the interval (0,0.5)

(Take h = 0.1) by Picards method.

e) Find the missing figures in the following table.

X	1	2	3	4	5	6	7	8
f(x)	1	8	27	?	125	?	343	512

Q3) Attempt any **THREE** of the following: **[15]**

a) Explain meaning of 'Time Series' with illustrations. Also discuss four components of Time Series.

b) State different properties of Normal Distribution.

c) Explain Chi-square test for independency of two attributes.

d) Let $X \rightarrow N(3, 2^2)$ Find $P(X < 5)$ and $P(2 < X < 8)$

e) The following 2 X 2 contingency table:

Eye colour of Father	Eye colour of son	
	Not Light	Light
Not Light	23	15
Light	15	47

Test whether eye colour of father and son is associated at 5 % level of significance.

Q4) Attempt any **THREE** of the following: **[15]**

a) Explain Concept of Autoregressive Model of First order.

b) A sample of 256 bricks has mean weight of 2.12 kg with standard deviation of 0.56 kg. Test the hypothesis that the samples from a population with mean weight 2 kg at 5 % level of significance.

c) Fit a straight line for the following data:

Year	1998	1999	2000	2001	2002
Production	12	20	28	32	50

Also estimate the trend for the year 2007.

d) Estimate the value of $\int_2^6 \frac{dx}{1+x}$ by using Simpsons (1/3) rd rule (take h = 1)

e) Suppose the sweets are sold in packages of fixed weight of the contents. The producer of the packages is interested in testing that the weight of contents in a packages is 1 kg hence a random sample of 12 packages is drawn and their average weight is found to be 0.9883 and sample standard deviation is to be 0.02. Can he conclude about average weight of contents in the packets? (Given $t_{11,5\%} = 2.201$)

Q5) Attempt any TWO of the following: **[20]**

a) Given $\frac{dy}{dx} = x + y$ if x = 0, then y = 1 .Find y(0.l) and y((0.2) correct up to four decimal places by using Runge-Kutta second order and fourth order formula.

OR

Using Eulers method, solve $\frac{dy}{dx} = 1 + y^2$,given y(0) = 0. Take h = 0.05 and obtain y(0.05), y(0.l) and y(0.15)

b) An IQ test was administered to five persons before and after they were trained. The result are given below:

Candidates	A	B	C	D	E
IQ before Training	110	120	123	132	125
IQ after Training	120	118	125	136	121

Test whether there is change in IQ before and after the training programme (5 % Level of Significance)

c) Find 4 yearly centered moving averages for the following data:

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Sale	68	62	61	63	65	58	66	61	68	63	63	67

Also draw the original and average trend on the same graph paper.

Total No. of Questions : 5]

SEAT No. :

P3273

[Total No. of Pages : 3

[4766] - 104

M.C.A. (Commerce Faculty) (Semester - I)

105 : OPERATING SYSTEM

(2008 Pattern)

Time : 3 Hours] *[Max. Marks : 80*

Instructions to the candidates:

1) *Neat diagrams must be drawn wherever necessary.*

2) *All Questions are compulsory.*

Q1) Attempt any four of the following : **[4 × 4 = 16]**

a) What is dispatcher? What are the functions performed by Dispatcher?

b) Explain Real Time System with its advantages and Disadvantages.

c) Explain Overlays in detail.

d) Differentiate between MVT and MFT job Scheduler.

e) State and explain the conditions to be satisfied by a solution to the Critical Section Problem.

Q2) Attempt any four of the following : **[4 × 4 = 16]**

a) Explain in brief services provided by operating system

b) List and explain the sequence of utilization of resource by process in normal mode of operation.

c) Explain Process Control Block with diagram.

d) List and Explain Scheduling Criteria.

e) Write a note on copy on write.

P.T.O.

Q3) Attempt any four of the following : **[4 × 4 = 16]**

a) Explain Direct Access method in detail.

b) List and explain in brief system calls provided by the operating system for the File Manipulation.

c) Differentiate between Long term and Medium Term Scheduler.

d) Calculate Average Waiting Time and Turn Around Time for FCFS CPU Scheduling Algorithm

Process	Burst Time	Arrival Time
P1	5	1
P2	6	0
P3	2	2
P4	4	0

e) What is Thrashing?

Q4) Attempt any four of the following : **[4 × 4 = 16]**

a) Explain the Following System Program :

i) Loaders

ii) Assemblers

b) Define Deadlock. Explain in brief three ways to deal with deadlock problem.

c) List and Explain operations on File.

d) What is Reentrant Code? How it is implemented using paging?

e) Consider the following Page Reference string :

3,7,4,8,3,4,5,6,2,3,4,5,6,7

The number of frames is 3. Show Page trace and calculate page Faults of the following Page Replacement Algorithm.

i) FIFO

ii) LFU

Q5) Attempt any four of the following : **[4 × 4 = 16]**

a) List and Explain different types of Scheduling Queues.

b) Explain Inverted Page Table with Diagram.

c) Explain Linked Allocation method in detail.

d) Consider the following snapshot of a system

	Allocation				Max			
	A	B	C	D	A	B	C	D
P0	0	0	1	2	0	0	1	2
P1	1	1	0	0	1	7	5	0
P2	1	3	5	4	2	3	5	6
P3	0	6	3	2	0	6	5	2
P4	1	0	1	4	1	6	5	6

Available			
A	B	C	D
1	4	2	0

Answer the following Question :

i) What is the content of need matrix?

ii) Is the system in safe state?

e) Explain the following terms :

i) Page Table

ii) Preemptive Scheduling

iii) Burst Time

iv) Starvation with related to deadlock

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Total No. of Questions : 5] SEAT No. :

P3274 [Total No. of Pages : 2

[4766] - 105

M.C.A. (Commerce Faculty) (Semester - I)

106 : SOFTWARE ENGINEERING

Time : 3.00 Hours] *[Max. Marks : 80*

Instructions to the candidates:

1) *All questions are compulsory.*
2) *Figures to the right indicate full marks.*
3) *Draw neat diagrams wherever necessary.*

Q1) Solve the following case study:

"Star Four wheeler Ltd" has issued an advertisement calling an application For various posts. After receiving applications, scrutiny will be made and Interview letters will be sent. Deserving candidates will be selected through Interviews and will be appointed as regular employees.

You are advised to identify Entities, processes, Data Stores and Data flows

In the above case and Answer the following.

a) Draw E-R Diagram for the above case **[6]**

b) Draw Context Level DFD **[4]**

c) Draw First Level DFD **[6]**

Q2) Answer the following (Any Four): **[16]**

a) Draw Decision table and Decision tree for the maximum of three numbers.

b) Explain the role of Analyst.

c) What is Quality? Explain its relationship with Analysis.

d) Explain different types of Test Data Generators.

e) Explain different types of categories of information system.

P.T.O.

Q3) Answer the following (Any Four): **[16]**

a) Explain Tuning and Optimization in details.

b) What are the fact finding techniques? Explain any one in details.

c) Design Input and Output Screen for the E-Mail registration.

d) Explain Data Dictionary with an example.

e) What is maintenance? Explain its types in details.

Q4) Write a note on the following (Any Four): **[16]**

a) Structured English.

b) Spiral Model.

c) Capability maturity model.

d) Feasibility Study.

e) Steps of Implementation.

Q5) Differentiate the following (Any Four): **[16]**

a) White Box testing and Black Box testing.

b) Re-Engineering and Reverse Engineering.

c) SDLC and Waterfall Model.

d) Structured and Unstructured interview.

e) Open and Closed System.

Total No. of Questions : 4]

SEAT No. : ____

P3301

[Total No. of Pages : 2

[4766] - 2001

M.C.A. (Commerce Faculty) (Semester - II)

201 : DATA STRUCTURE USING C

(2013 Pattern)

Time : 3 Hours] ***[Max. Marks : 50***

Instructions to the candidates:

1) ***Neat diagrams must be drawn wherever necessary.***
2) ***Figures to the right side indicate full marks.***

Q1) a) Answer Any Three of the following. **[12]**

i) Sort the following numbers using bubble sort method 4, 17, 3,9,22, 12, 8.

ii) Write a C function to append element in doubly linked list.

iii) Write a note on priority queue

iv) Explain concept of overflow and method to handle overflow.

b) Answer Any One of the following : **[2]**

i) Define Space complexity & Time Complexity.

ii) Define Complete Binary tree & Strictly Binary tree.

Q2) Answer Any Three of the following. **[12]**

a) Convert the following infix expression into postfix expression A+B*C-D/E*F+G.

b) Explain different any two hashing functions.

c) Write note on row major and column major representation of array.

d) Consruct AVL tree for following data 80, 40, 20, 100, 70, 200, 150.

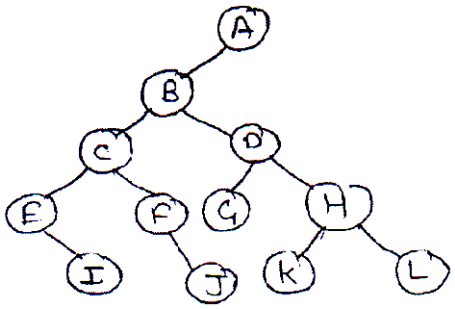
P.T.O.

Q3) Answer Any Three of the following. **[12]**

a) Sort the following numbers in ascending order using heap sort method 108, 97, 71, 23, 57, 93, 100.

b) Write a C function to count total number of leaf nodes in binary tree.

c) Find preorder, inorder & postorder traversal for following binary tree.



d) Write a C function “push” to add elements in dynamic stack.

Q4) Answer Any Three of the following. **[12]**

a) Write an algorithm for BFS traversal of a Graph.

b) What is generalized linked list? Represent the given list (a, (b, c, d), e, f).

c) What is abstract data type? Explain with example.

d) Consider the following adjacency matrix

	1	2	3	4
1	0	1	0	0
2	0	0	1	0
3	0	0	0	1
4	1	0	0	0

i) Draw the Graph

ii) Draw the Adjacency list

iii) Calculate Indegree, Outdegree for each vertex.

Total No. of Questions : 4] **SEAT No. :**

P3302 **[Total No. of Pages : 4**

[4766] - 2002

M.C.A. (Commerce) (Theory) (Semester - II)

202 : OBJECT ORIENTED PROGRAMMING USING C++

(Credit System)

Time : 3 Hours] ***[Max. Marks : 50***

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right side indicate full marks.***
4) ***Assume Suitable data if necessary***

Q1) Attempt any two : **[2 × 7 = 14]**

a) Write a program which reads a text file and copies every alternate character in another file using command line arguments.

b) Design a class employee which includes the following data members:

i) Emp Number

ii) Emp Name

iii) Basic

Member functions

i) To Assign initial value

ii) To calculate net salary

iii) To display Net salary with employee details.

Calculate the net salary using the formulae

Gross salary = Basic + DA + HRA

Net salary = Gross salary – Deductions

The following conditions apply for the calculations

i) DA is 40% of basic salary

ii) HRA is 30 % of basic salary

iii) PF is deduction is 10 % of the basic salary.

c) Explain Class and Function template with suitable example.

P.T.O.

Q2) Write outputs with explaination (attempt any three) : **[3 × 4 = 12**

a)
```
class Test
{
    static int i ;
    int j ;
} ;
int Test : : i ;
int main ()
{
    cout << size of (Test);
    return 0;
}
```

b)
```
# include < iostream.h >
# include < conio.h >
class base
{
    public:
    void disp ()
    {
    char * ptr = (char*) '0' ;
    int i = 96 ;
    int *j = (int *) & ptr ;
    cout << i/* j ;
    }
};
void main ()
{
    clrscr () ;
    base b;
    b.disp () ;
}
```

c)
```
void main ()
{
    int a = 65;
    int * const p = &a;
    cout << char (*p);
    *p = 66;
    cout << char (*p);
    (char*) p++;
    cout << char(*p);
}
```

d)
```
class sample
{
    int a;
    public:
    explicit sample (int i)
{
    a = i;
}
    void display ()
{
    cout << “Value of A : “<<a;
}
};
int main ()
{
    sample S = 25;
    S.display ();
    return 0;
}
```

Q3) Attempt any three : **[3 × 4 = 12]**

a) What is Operator overloading? Explain Compile and Run Time Polumorphism.

b) Explain types of inheritance with suitable example of each type.

c) What is access specifier? Compare Public, Private and Protected.

d) Write a C++ program to sort n number of elements in descending order using Function Overloading.

Q4) Write short note on (any three) : **[3 × 4 = 12]**

a) Inline function

b) Stream Classes

c) Constructors and Destructors

d) Memory Management operators

● ● ●

Total No. of Questions : 4] SEAT No. :

P3303 [Total No. of Pages : 2

[4766] - 2003
M.C.A. (Commerce) (Semester - II)
203 : ELEMENTS OF MATHEMATICS
(Credit System)

Time : 3 Hours] *[Max. Marks : 50*

Instructions to the candidates:

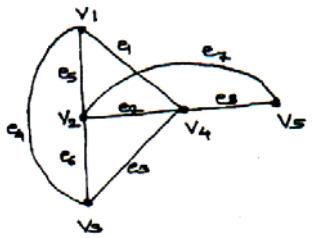
1) ***All questions are compulsory.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right side indicate full marks.***

Q1) Attempt any TWO. **[2 × 7 = 14]**

a) Let A = {1,2,3,4} and R = {(1,2), (2,1), (2,3), (3,4)}. Find R^+ by using Warshall's algorithm.

b) Let A = {1, 2, 3, 4} and let R = {(1,1), (1,2), (1,3), (2,1), (2,2), (2,3), (3,1), (3,2), (3,3), (4,4)}. Show that R is an equivalence relation and also determine the equivalence classes.

c) Define adjacency and incidence matrix and also find the adjacency and incidence matrix of the following graph.



Q2) Attempt any THREE : **[3 × 4 = 12]**

a) Define and explain the concept :

i) Partition of set ii) Sparse Matrix

b) Draw and determine the number of pendent vertices in a tree, if it has :

i) 2 vertices of degree 2 and 1 vertex of degree 3

ii) 1 vertex of degree 4, 2 vertices of degree 3 and 1 vertex of degree2.

c) Prove that, $P \rightarrow (Q \rightarrow R)$ and $(P \wedge \neg R) \rightarrow \neg Q$ are logically equal.

d) Let R and S be the following relations of B = {a, b, c, d}, R = {(a,a), (a,c), (c,b), (c,d) (d,d)} and S = {(b,a), (c,c), (c,d), (d,a)}.

Find : i) SoR ii) SoRoS

P.T.O.

Q3) Attempt any THREE : **[3 × 4 = 12]**

a) Define and explain

i) Directed graph

ii) Spanning tree

b) Verify the following implication is a tautology by using truth table

$$\left[\left(P \vee Q\right) \wedge \left(P \rightarrow R\right) \wedge \left(Q \rightarrow R\right)\right] \rightarrow R$$

c) Let f : A→B and A = B = R, $f(x) = 2x^3+1$. Find f^{-1}.

d) Let, $A = \begin{bmatrix} 1 & 3 \\ 2 & -1 \end{bmatrix}$ and $B = \begin{bmatrix} 2 & 0 & -4 \\ 3 & -2 & 6 \end{bmatrix}$

Find A.B

Q4) Attempt any THREE : **[3 × 4 = 12]**

a) In a group of 120 students studying computer course, 84 can program C++ and 66 can program in Java. If 45 can program in both C++ and Java; how many of the students are not program in either of the language.

b) Define an explain :

i) Bijective function ii) Surjective function

c) Explain the symmetric and asymmetric directed graphs.

d) Explain different types of Logical connectivities with truth table.

Total No. of Questions : 4] SEAT No. :

P3304 [Total No. of Pages : 2

[4766] - 2004

M.C.A. (Commerce) (Semester - II)

204 : SYSTEM ANALYSIS AND DESIGN

(Credit System)

Time : 3. Hours] *[Max. Marks : 50*

Instructions to the candidates:

1) *All Questions are compulsory.*
2) *Neat diagrams must be drawn wherever necessary.*
3) *Figures to the right side indicate full marks.*

Q1) Front office of Star Hotel is responsible for room reservations, room allocations and final settlement of bills. Any company or person can reserve rooms for their future stay. They have to indicate the period for which they need the room and the number of rooms rquired. Sometimes the reservations could be cancelled or the dates or number of rooms changed. For reservation; cancellation or modification of rooms, customer receives and acknowledgement from the hotel. **[14]**

a) Draw context level and first level DFD for the above case study.

b) Draw ERD.

Q2) *Attempt the following Questions (Any Two):* **[2 × 6 = 12]**

a) Explain various Phases of System Development Life Cycle.

b) Design a GUI form for opening a saving account in a bank.

c) Explain Role and skills of System Analyst in detail.

P.T.O.

Q3) *Attempt any Three:* **[3 × 4 = 12]**

a) Explain decision tree, decision table with proper examples.

b) Compare Prototyping Model Vs Spiral Model.

c) Explain Feasibility Study in detail.

d) Explain Types of Software Testing in detail.

Q4) *Write short Notes on (Attempt Any Three):* **[3 × 4 = 12]**

a) Agile Process

b) Types of System

c) Reverse Engineering

d) RAD Model

Total No. of Questions : 4] SEAT No. :

P3305 [Total No. of Pages : 3

[4766] - 2005

M.C.A. (Commerce) (Semester - II)

205 : DATABASE MANAGEMENT SYSTEM

(2013 Pattern) (Credit System)

Time : 3 Hours] *[Max. Marks : 50*

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Figures to the right indicate full marks.***
3) ***Neat diagrams must be drawn wherever necessary.***
4) ***Assume suitable data if necessary.***

Q1) a) Attempt any Three : **[3 × 2 = 6]**

i) What is Dataware house?

ii) List Aggregate functions in SQL.

iii) What is strong entity set?

iv) List transaction properties.

b) In a college library books/periodicals are issued to students as well as to faculties. These books are categorized according to subjects. Each book has a unique id. Faculties can give new books/periodicals purchase requirement.

From a given case study list out entities attributes, Primary keys & relationships. Draw an E-R diagram for the same. **[8]**

Q2) Attempt Any Three : **[3 × 4 = 12]**

a) Explain features of good relational database design.

b) Write a note on serializability.

c) Define deadlock. Explain deadlock detection & recovery.

d) Explain recovery with concurrent transaction

P.T.O.

Q3) a) Consider the following relations & solve any two queries in relational algebra. **[2 × 2 = 4]**

Customer (Cno, Cname, City)

Quatation (quot-no, q - date, description, amt - quoted, Cno)

i) List all customers who live in 'Nashik' or 'Baramati'.

ii) Display names of customer having quotation for 'Chair'.

iii) Display names of customers along with city whose amt-quoted as Rs. 2,000

b) Consider the following relations & solve any four queries in SQL **[4 × 2 = 8]**

Doctor (dno, dname, city)

Patient (opdno, pat-name, phno)

Doctor-Patient (dno, opdno)

i) Create table query for patient table by adding primary key constraint & Pat-name should be NOT-NULL

ii) Add disease attribute in patient table.

iii) Insert a row in Doctor table.

iv) Display names of doctor who live in 'Pune' City.

v) Delete all patient details suffering from 'Swine-flu'.

Q4) Attempt Any Three : **[3 × 4 = 12]**

a) Explain various keys in DBMS.

b) Write a note on DBMS Architecture.

c) Following are the log entries at the time of system crash.
[Start - transaction, T_1]

[Write - item, T_1, A, 250]

[Commit, T_1]

[Checkpoint]

[Start - transaction, T_2]

[Write - item, T_2, B, 300]

[Commit, T_2]

[Start - transaction, T_3]

[Write - item, T_3, E, 250] system crash

If deferred update technique with checkpoint is used. What will be the recovery procedure?

d) Following is a list of events in an interleaved execution of set of transaction T_1, T_2, T_3 with two phase locking protocol. Is there a deadlock? If yes which transactions are involved in deadlock?

Time	Transaction	Code
t_1	T_1	lock (A, S)
t_2	T_2	lock (B, S)
t_3	T_3	lock (C, S)
t_4	T_1	lock (C, X)
t_5	T_2	lock (D, X)
t_6	T_1	lock (D, S)
t_7	T_2	lock (A, X)
t_8	T_3	lock (B, X)

Total No. of Questions : 4] SEAT No. :

P3306 [Total No. of Pages : 2

[4766] -2006

M.C.A.Commerce (Semester - II)

HUMAN RESOURCE MANAGEMENT

(CBCS) (2013 Pattern)

Time : 3 Hours] *[Max. Marks : 50*

Instructions to the candidates :

1) ***All questions are compulsory.***
2) ***Attempt any two from each question.***
3) ***Figures to the right indicate full marks.***

Q1) a) Define Human Resource management? Explain differece between HRM & personnel management. **[7]**

b) Briefly explain the employee selection process with any real world example. **[7]**

c) Discuss Human resource planning & explain factor considered for Human resource planning. **[7]**

Q2) a) Define Recruitment. Explain the sources of recruitment in brief. **[6]**

b) Explain methods of employee Training in brief. **[6]**

c) Explain the process of performance appraisal. **[6]**

Q3) a) Define HRD? Explain the importance of it. **[6]**

b) Explain the process of job analysis. **[6]**

c) Define union? Explain the reasons behind joining the union. **[6]**

P.T.O.

Q4) a) Explain the process of human resource planning. **[6]**

b) "Collective bargaining is an effective tool for grievances redressal". Explain the process collectivie bargaining . **[6]**

c) What are the challenges of HRM in the global environment? **[6]**

Total No. of Questions : 5]

SEAT No. :

P3275

[Total No. of Pages : 4

[4766] - 201

M.C.A. (Commerce) (Semester - II)

202 : RELATIONAL DATABASE MANAGEMENT SYSTEM

(2008 Pattern)

Time : 3 Hours] *[Max. Marks : 80*

Instructions to the candidates:

1) ***Neat diagrams must be drawn wherever necessary.***
2) ***Figures to the right side indicate full marks.***
3) ***All questions are compulsory.***

Q1) Attempt all of the following : **[8 × 2 = 16]**

a) List any two advantages of DBMS.

b) Define: -

i) Weak entity set

ii) Strong entity set

c) What is mean by Referential Integrity?

d) Define Precedence Graph with example.

e) Which are Armstrong's Axioms?

f) Which are different fields of update log record?

g) What is Privilege? List four Privileges.

h) Give syntax of GRANT command.

Q2) Attempt any four : **[4 × 4 = 16]**

a) Write a note Validation Based Protocol.

b) Explain following Relational Algebra operations

i) Project

ii) Select

P.T.O.

c) Write a note on Deferred Database Modification Technique.

d) What are different functions of DBA?

e) What is Data Model? Explain Different Categories of Data Model.

Q3) Attempt any four : **[4 × 4 = 16]**

a) What is Deadlock? How it is detected?

b) What is transaction? Explain ACID properties of transaction.

c) Differentiate between Generalization and Specialization.

d) Write a note on functional dependency.

e) Define:

i) Relation

ii) Entity

iii) Attribute

iv) Database Instance

Q4) Attempt the following : **[10 + 6 = 16]**

A) A 'Diamond' an agency for flat booking and it has number of builders and agents. A customer can get a flat for residential or commercial purpose. If customer approach through an agent to the agency and builders are giving some commission to the agent. An agent shows various flats and sites within various locations.

Draw E- R Diagram for the above scenario. Identify Entities and Relationships among Entities. **[1 + 10 = 10]**

B) Attempt all of the following : **[2 × 3 = 6]**

a) What is difference between binary and ternary relationship? Explain with example.

b) What is BCNF? Explain with example.

Q5) Attempt following : **[10 + 6 = 16]**

A) Consider the following Schema. **[1 × 10 =10]**

Doctor(dno, dname, city)

Patient(pno,pname, address,disease, dno)

Doctor and Patient are related with **One to Many** relationship

Solve the following queries using SQL. **[3 × 2 = 6]**

i) Find name of patient who are treated by ‘Dr. Apte’

ii) Display doctor wise details of patient.

iii) Count the number of patient suffering from ‘Asthma’.

Solve the following queries using Relational algebra. **[2 × 2 = 4]**

i) Find the names of doctor who are treating the ‘Diabetics’ Patient.

ii) List the name of doctors from 'Pune' city.

B) Attempt all of the following : **[2 × 3 = 6]**

i) Consider the following transactions

T1	**T2**
R(A)	R(B)
A=A–30	B=B+20
W(A)	W(B)
R(B)	R(C)
B=B+100	C=C+50
W(B)	W(C)

Find out a schedule which is serializable to serial schedule<T1, T2>

ii) Consider the following non-serial schedule. Is this schedule is serializable to serial schedule <T1, T2, T3>?

T1	**T2**	**T3**
R(p)		
W(p)		
	R(r)	
R(q)		
W(q)		
	R(q)	
	W(q)	
		R(q)
	R(p)	
	W(p)	
		R(r)
		W(q)
		W(r)

Total No. of Questions : 5]

SEAT No. : ____

P3276

[Total No. of Pages : 5

[4766] - 202

M.C. A. (Commerce Faculty) (Semester - II)

203 : COST ACCOUNTING & COST CONTROL TECHNIQUES

(2008 Pattern)

Time : 3 Hours] ***[Max. Marks : 80***

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***All questions carry equal marks.***

Q1) a) Define Cost Accounting state the advantages of Cost Accounting. **[8]**

b) What is financial Accounting? Explain the limitations of financial Accounting. **[8]**

Q2) Write short notes on (any four) : **[16]**

a) Cost Unit

b) Functional Classification of overhead

c) Features of Job Costing

d) Break Even Point

e) Methods of Overhead Absorption

f) Advantages of Budgetary Control

Q3) The Cost accounts Amit Ltd. Nasik for the year ended 31.3.2014 showed the following information. **[16]**

Types of Stock	1.4.2013	31.3.2014
Raw Materials	65,000	50,000
Work in-progress	10,000	7,500
Finished stock	15,000	5,000

P.T.O.

		Rs.
Underwriting commission		10,000
Purchases of Raw Materials		2,60,000
Selling Overheads		8,000
Drawing office salaries		12,000
Productive Labour		1,65,000
Audit fees		7,000
Establishment on cost		2,000
Steam, Gas and Water		1,500
Sales		5,50,000
Rent	Factory - $\frac{2}{3}$	15,000
	Office -	
Architect's fees	$\frac{1}{3}$	10,000
Wages outstanding		5,000
Octroi and Duty		5,000
Distribution on cost		2,000

Prepare cost sheet showing

i) Cost of Material Consumed.

ii) Prime Cost

iii) Works Cost

iv) Cost of production

v) Total Cost

vi) Profit

Q4) Product XYZ is obtained after it passes through three distinct processes. You are required to prepare process accounts from the following information. **[16]**

Items	Process			
	Total	I	II	III
Material	1,50,840	52,000	39,600	59,240
Direct wages				
Production	1,80,000	40,000	60,000	80,000
Overheads	1,80,000	-	-	-

1000 units @ Rs. 60 per unit were introduced in process I. Production Overheads to be distributed as 100% on direct wages.

	Actual Output (units)	Normal loss	Value of scrap per unit Rs.
Process I	950	5%	40
Process II	840	10%	80
Process III	750	15%	100

OR

Mr. Patil Builders, Pune, undertake a contract for Rs. 50,00,000/- of construction of a Hospital. The following is the information relating to the contract during the year 2013.

Particulars	Rs.
Material sent to site	10,00,000
Material Purchased directly	7,06,980
Labour -	14,00,000
Out standing wages	87,500
Plant installed at site	3,00,000
Depreciation on plant	80,000

Direct Expenses	63,340
Out standing direct Expenses	5,800
Overhead charges	82,520
Material returned	10,980
Work certified	39,00,000
Work not certified	90,000
Material at site on 31.12.13	37,660
Overhead charges payable	92,500
Cash Received from contractee	36,00,000

Prepare Contract Account & Contractee Account

Q5) A factory produces 20,000 units the budgeted expenses are given below.**[16]**

Particulars	Per Unit Rs.
Raw Material	75
Direct Labour	20
Direct Expenses	25
Overheads	15
Fixed overheads (Rs. 4,00,000)	20
Administrative Expenses (Fixed)	10
Selling Expenses (10% fixed)	15
Distribution expenses (25% fixed)	20
Total Cost Per Unit	200

You are required to prepare a budget for 15,000 and 10,000 units.

OR

a) The following information obtained from Arun Kumar Co. Ltd. for the year ended 31st March, 2014. **[8]**

Sales - Rs. 3,00,000

Variable Cost Rs. 2,25,000

Fixed Cost Rs. 25,000

Your are required to calculate :-

i) P. V. Ratio

ii) Break-even point sales.

iii) Profit when sales amounted to Rs. 4,50,000.

iv) Sales to earn a profit of Rs. 80,000.

b) From the following particulars calculate the following material variances. **[8]**

Material	Standard		Actual	
	Qty. (kg)	Price (Rs.)	Qty (kg)	Price (Rs.)
A	10	8	10	7
B	8	6	9	7
C	4	12	5	11
	22	-	24	-

i) Material Cost Variance.

ii) Material Usage Variance

iii) Material Price Variance

Total No. of Questions : 5] **SEAT No. :**

P3277 **[Total No. of Pages : 4**

[4766] - 203

M.C.A. (Commerce Faculty) (Semester - II)

ACCOUNTING FOR MANAGEMENT

Time : 3 Hours] ***[Max. Marks : 80***

Instructions to the candidates:

1) ***All questions are compulsory & carry equal marks.***
2) ***Figures to the right indicate full marks.***
3) ***Use of calculator is allowed***

Q1) Define "Management Accounting". Explain its scope & functions. **[16]**

OR

Define "Budget" and "Budgetary Control". State objectives of budgetary control. Also explain the essentials of successful budgetary system.

Q2) From the following particulars relating to MC Industries Ltd., prepare a Balance Sheet as on 31st March 2014. **[16]**

Fixed Asset Turnover Ratio	1 : 2
Debt Collection Period	2 Months
Gross Profit	25%
Fixed Assets to Current Assets	1 : 1
Long Term Debts to Current Liabilities	1 : 3
Current Ratio	2
Share Capital to Reserve	5 : 2
Value of Fixed Assets	Rs. 21,00,000/-
Inventory Turnover Ratio	3

P.T.O.

OR

Define "Financial Statements Analysis". Explain various techniques of Financial Statement Analysis.

Q3) Two firms A & Co. Ltd. And B & Co. Ltd. sell the same type of product in the same market. Their budgeted profit & loss account for the year ending 31st March, 2014 was as follows.

Particulars	A & Co. Ltd.		B & Co. Ltd.	
	Amount Rs.	Amount Rs.	Amount Rs.	Amount Rs.
Sales		50,00,000		60,00,000
Variable Costs	40,00,000		40,00,000	
Fixed Costs	3,00,000	43,00,000	7,00,000	47,00,000
Profit		7,00,000		13,00,000

Required : **[16]**

a) Profit Volume Ratio of both the companies

b) Break Even Point of both the companies.

c) Calculate at which sales volume, both the firms will earn same amount of profit.

d) State with reasons which firm is likely to earn greater profit in conditions of

i) Heavy demand for the product.

ii) Low demand for the product.

OR

From the information given below prepare a Cash Budget for the three months Ending 30th June 2014.

Month	Sales (Rs.)	Material (Rs.)	Wages (Rs.)	Overheads (Rs.)
February	1,40,000	96,000	30,000	17,000
March	1,50,000	90,000	30,000	19,000
April	1,60,000	92,000	32,000	20,000
May	1,70,000	1,00,000	36,000	22,000
June	1,80,000	1,04,000	40,000	23,000

a) Credit terms are :

i) 10% sales are on cash basis, 50% of the credit sales are collected in next month and the balance in the following month.

ii) Creditors -

For Materials	2 months lag in payment
For Wages	¼ month lag in payment
For Overheads	½ month lag in payment

b) Cash & Bank balance on 1st April 2014 is expected to Rs. 60,000/-.

c) Plant will be installed in February 2014 at a cost of Rs. 9,60,000/-. The monthly installment of Rs. 20,000/- is payable from April 2014 onwards.

d) Dividend at 5% on preference share capital of Rs. 20,00,000/- will be paid on 1st June, 2014.

e) Advance to be received from sale of vehicle Rs. 90,000/- in June 2014.

f) Dividends from investments amounting to Rs. 10,000/- are expected to be received in June 2014.

g) Advance Income Tax of Rs. 20,000/- is to be paid in the month of June 2014.

Q4) Balance Sheets of Anxious Ltd. as on 31st March 2013 and 31st March 2014.

Liabilities	31.03.2013 Rs.	31.03.2014 Rs.	Assets	31.03.2013 Rs.	31.03.2014 Rs.
Share Capital	3,00,000	3,60,000	Fixed Assets	2,20,000	2,30,000
General Reserve	60,000	75,000	Investments	40,000	30,000
Profit & Loss A/c	40,000	1,20,000	S.Debtors	1,80,000	2,10,000
12% Debentures	2,50,000	1,50,000	Bills Receivables	60,000	55,000
Mortgage Loans	50,000	50,000	Stock	2,10,000	1,90,000
S. Creditors	1,20,000	1,10,000	Cash & Bank	1,70,000	2,28,000
R.D.D.	5,000	6,000	Disc. on issue of Debentures	15,000	10,000
Bills Payable	30,000	40,000			
Provision for Taxations	40,000	42,000			
Total	8,95,000	9,53,000		8,95,000	9,53,000

Additional Information : -

a) Fixed Assets costing Rs. 30,000/- (accumulated depreciation Rs. 15,000/-) was sold for Rs. 18,000/-.

b) Interim dividend declared & paid amounted to Rs. 15,000/-

c) Taxes paid during the year was Rs. 38,000/-

d) Depreciation charged on fixed assets amounted to Rs. 22,000/-

e) Debentures were redeemed by purchase in open market at Rs. 102/- per Rs. 100/-

Prepare Funds Flow Statement, Statement showing changes in working capital along with necessary workings. **[16]**

OR

What do you mean by Ratio Analysis? State the advantages and limitations of Ratio Analysis.

Q5) Write Short Notes (Any two) **[16]**

a) Advantages of Cash Flow Statement.

b) Breakeven chart.

c) Objectives of Analysis of Financial Statement.

d) Limitations of Management Accounting**.**

Total No. of Questions : 5] SEAT No. :

P3278 [Total No. of Pages : 2

[4766] - 204

M.C.A. (Commerce Faculty) (Semester - II)

205 : NETWORKING OPERATIONS

Time : 3 Hours] *[Max. Marks : 80*

Instructions to the candidates:

1) ***Neat diagrams must be drawn wherever necessary.***
2) ***Figures to the right side indicate full marks.***
3) ***All questions are compulsory.***

Q1) Attempt the following (Any Four): **[16]**

a) Explain mesh topology with neat diagram.

b) Write functions of session layer.

c) Write note on BNC connector.

d) Explain gateways in details.

e) Explain features of Ethernet.

Q2) Attempt the following (Any Four): **[16]**

a) What is LAN? Write technologies used to build LAN.

b) Discuss the design issues of the layer.

c) Write note on Twisted pair.

d) Explain source route bridging.

e) Write components and functions of network interface cards.

P.T.O.

Q3) Attempt the following (Any Four): **[16]**

a) Compare synchronous and asynchronous communication types.

b) Write functions of network layer.

c) Explain unguided transmission media.

d) Compare passive and active hubs.

e) Write frame format of IEEE 802.5.

Q4) Attempt the following (Any Four): **[16]**

a) Compare server based and peer to peer LANs.

b) Compare ISO-OSI and TCP - IP model.

c) Explain any two propagations methods.

d) Explain two layer switches.

e) Explain concept of intranet and extranet.

Q5) Write note on the following (Any Four): **[16]**

a) Internet.

b) TCP/IP model.

c) Bluetooth.

d) Internet Information Server (IIS).

e) WWW Architecture.

Total No. of Questions : 5] **SEAT No. :**

P3279 **[Total No. of Pages : 3**

[4766] - 205
M.C.A. (Commerce) (Semester - IV)
206 : OBJECT ORIENTED PROGRAMMING
(2008 Pattern)

Time : 3 Hours] ***[Max. Marks : 80***

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Figures to the right indicate full marks.***
3) ***Assume Suitable data jf necessary.***
4) ***Answer of sub questions of each questions should be attempted at one place. It should not be written separately.***

Q1) Attempt any four: **[4 × 4 = 16]**

a) Explain the use of "super" keyword with the help of examples.

b) What is inline function? Explain with example.

c) Compare multiple inheritance used in Java and C++?

d) Explain the rules of operator overloading.

e) How arrays are represented in C++? Explain with suitable example.

Q2) Attempt any four: **[4 × 4 = 16]**

a) Explain characteristics of friend function,

b) What is the meaning of following statement and each keyword?

i) System.out.println()

ii) public static void main(String args[])

c) How can we define member functions in C++? Explain with examples.

d) Explain the keywords: public, private and protected.

e) Write a note on : Virtual base class.

P.T.O.

Q3) Attempt any four: **[4 × 4 = 16]**

a) Explain the use of 'new' keyword in java.

b) Why Java needs compiler and interpreter?

c) Explain abstract classes and methods with example.

d) Differentiate between function overloading and function overriding.

e) Can we extend interfaces? Explain with example.

Q4) Attempt any four: **[4 × 4 = 16]**

a) Write a C++ program that can accept two numbers and print addition using operator overloading '+'

b) Write a java program which accepts marks of three subjects. If marks are more than 80 then display an error message "ERROR : Marks out of range". (Use Exception Handling)

c) Write a C++ program to display the following

C

CL

CLA

CLAS

CLASS

d) Write a C++ program to find out minimum of two integers of two different classes using friend function.

e) Write a Java program to read line of integers. Display each integer and also display sum of only odd integers.

Q5) a) Trace the output: (Assume there is not syntax error): **[2 × 4 = 8]**

i)
```
int m=l;
while(m<l 1)
{
    m++;
    cout<<m++;
}
```

What will be the output, when executed? Explain Why?

ii) Public class Test

```
{
    public static void main (String a[])
    {double[] x=new double[] {l, 2, 3};
        System.out.println(x[1]);
    }
}
```

What will be the output, when executed? Explain Why?

b) Attempt any two: **[2 × 4 = 8]**

i) Write a Java program to accept string from the user and count frequency of each vowel in the given string.

ii) Write a C++ program to calculate volume of a sphere using a parameterized constructor.

iii) Write a program that accepts a shopping list of 5 items from command line and store, display them. (using array).

Total No. of Questions : 4] **SEAT No. :**

P3307 **[Total No. of Pages : 2**

[4766] - 3001
MCA (Commerce Faculty) (Semester - III)
(301) : Core Java
(2013 Pattern) (Credit System)

Time : 3 Hours] ***[Maximum Marks : 50***

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Figures to the right indicate full marks.***
3) ***All questions carry equal marks.***
4) ***Assume suitable data if necessary.***

Q1) Attempt any seven : **[7 × 2 = 14]**

a) Explain the purpose of Javac and java tool.

b) Difference between print ( ) and println( ) method.

c) Why listIterator ( ) method is used?

d) What is stream?

e) List the methods with syntax used to convert the string in uppercase and lower case.

f) What is the default type of methods in interface?

g) What is the difference between throw ( ) and throws ( )?

h) Which package must be included when creating an applet?

i) Explain the purpose of getText ( ) and set Text ( ) methods.

Q2) Attempt any three : **[3 × 4 = 12]**

a) What is an adapter class? Give suitable example of implementing Window Listener.

b) How to create user defined Exception?

c) Define an abstract class staff with protected members id & name. Define a parameterized constructor. Define one subclass office staff with member department. Create n object of office staff and display all details.

d) Write a java program to accept n strings from the user and display the length of the longest string.

P.T.O.

Q3) Attempt any three : **[3 × 4 = 12]**

a) Define Applet? Explain types of Applet.

b) What is package? Write steps for creating user defined package?

c) Write a java program to implement following options on vectors :

i) Add Elements

ii) Delete elements

iii) Display

d) Write a java program which creates only one object. If user attempt to create second object, he should not create. (Use Exception Handling)

Q4) Attempt any three : **[3 × 4 = 12]**

a) Define Array? Explain its types with example.

b) Explain how java handles multiple inheritance?

c) Write a program to display "All the Best" in 5 different colors on screen. (Using AWT/Swings).

d) Write a simple java program to check whether a given number is Armstrong or not. (Use command line argument).

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Total No. of Questions : 8] SEAT No. :

P3308 [Total No. of Pages : 2

[4766] - 3002

M. C. A. (Commerce) (Semester - III)

302 : ADVANCED DATABASE MANAGEMENT SYSTEM

(2013 Pattern) (Credit System)

Time : 3 Hours] *[Max. Marks : 50*

Instructions to the candidates:

1) ***Attempt any five questions.***
2) ***Figures to the right indicate full marks.***

Q1) Attempt the following :

a) Differentiate between OODBMS & ORDBMS. **[4]**

b) Which applications involves spatial data? **[4]**

c) Define : **[2]**

i) Region

ii) Raster Data

Q2) Attempt the following :

a) Write a note on Extended F-R model. **[4]**

b) What is parallel database system? Differentiate between shared disk & shared nothing architecture. **[4]**

c) What is object Identity? **[2]**

Q3) Attempt the following :

a) Write a note on R-Trees. **[4]**

b) What is data partitioning? Which are data partitioning techniques? **[4]**

c) Define : **[2]**

i) Data parallelism

ii) Interquery parallelism

Q4) Attempt the following :

a) What is distributed database system? What are desirable properties of distributed database system? **[4]**

b) What is data replication? What are advantages & disadvantages? **[4]**

c) Compare remote back up & Replication in terms of availability. **[2]**

P.T.O

Q5) Attempt the following :

a) Write a note on Hash Join. **[4]**

b) Write a note on HITS Algorithm. **[4]**

c) What is majority based approach? **[2]**

Q6) Attempt the following :

a) Explain path expression with suitable example. **[4]**

b) What is XML? Differentiate between XML? HTML. **[4]**

c) Define : **[2]**

i) Posting file

ii) Term Frequency

Q7) Attempt the following :

a) Explain in detail steps of query processing. **[5]**

b) Explain vector space model with suitable example. **[5]**

Q8) Attempt the following :

a) Perform vertical fragmentation of passenger relation given below :

Passenger (Pno, pname, address, age, gender) according to following requirements.

i) Site 1 requires information about pno, pname & address.

ii) Site 2 requires information about age & gender.

[5]

b) Consider the following schema.
Student (Sno, Sname, City, Class)
Perform horizontal fragmentation of student relation using following predicates.

$P_1 : \sigma \text{ sno} \leq 10$

$P_2 : \sigma \text{ sno} > 10 \text{ and sno} \leq 50$

$P_3 : \sigma \text{ sno} > 50$

[5]

Total No. of Questions : 4] **SEAT No. :**

P3309 **[Total No. of Pages : 2**

[4766] - 3003
M.C.A. (Commerce Faculty) (Semester - III)
303 : Object Oriented Software Engineering
(2013 Pattern)

Time : 3 Hours] ***[Max. Marks : 50***

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Figures to the right indicate full marks.***

Q1) Attempt any seven of the following. **[7 × 2 = 14]**

a) What is aggregation?

b) State symbols use in use case diagram?

c) What is the significance of role names in an object diagram?

d) What is object oriented modeling?

e) What is inception?

f) Define team member of agile software?

g) What is Elaboration?

h) What is branching?

i) What is objective of testing?

Q2) Attempt any three of the following: **[3 × 4 = 12]**

a) Explain software development life cycle in details.

b) Explain different types of unified process disciplines.

c) Explain different types of conceptual model of UML.

d) What is collaboration diagram? Explain basic symbol of collaboration diagram.

P.T.O.

Q3) Attempt any three of the following : **[3 × 4 = 12]**

a) Write a note on resource management component.

b) Draw class diagram for ATM banking system.

c) Explain different types of object oriented testing strategies in details.

d) "Aggregation can be recursive" , State true or false Justify.

Q4) Attempt any three of the following : **[3 × 4 = 12]**

a) Explain different types of views.

b) What are the four kinds of things used in the UML? Explain any one in details.

c) Draw state transition diagram for Inventory management system.

d) Explain testing life cycle in detail.

Total No. of Questions : 4]

SEAT No. :

P3310

[Total No. of Pages : 2

[4766] - 3004

M.C.A. (Commerce) (Semester - III)

305 : NETWORK OPERATIONS

(Credit System) (2013 Pattern)

Time : 3 Hours] *[Max. Marks : 50*

Instructions to the candidates:

1) ***All Questions are compulsory.***
2) ***Figures to the rith indicate full marks.***

Q1) a) Solve any Three : **[3 × 4 = 12]**

i) Explain Ring Topology.

ii) Explain functionality of physical and Data link layer of OSI model.

iii) Write note on sliding window protocol.

iv) Write note on CSMA.

b) Solve any one : **[1 × 2 = 2]**

i) State Nyquist Bit rate formulae.

ii) State goals of computer Network.

Q2) Solve any Three : **[3 × 4 = 12]**

a) Write note on multiplexing and demultiplexing.

b) Compare Manchester and differential Manchester coding.

c) Explain stop and wait ARQ.

d) What is virtual circuit and Datagram? Compare.

P.T.O.

Q3) Solve any Three : **[3 × 4 = 12]**

a) What is use of defacto standards? Explain working of protocol stack.

b) Explain packet switching with its advantages & disadvantages.

c) Write note on IPV6 protocol.

d) What is channelization? Explain its protocols.

Q4) Solve any Three : **[3 × 4 = 12]**

a) Consider extremely noisy channel in which signal to noise ratio is zero. Find out capacity of the channel.

b) Explain logical addressing. Give the IPv4 address structure.

c) Explain coaxial cable with its type.

d) Explain physical address and logical address with the help of example.

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Total No. of Questions :4] **SEAT No. :**

P3311 **[Total No. of Pages : 2**

[4766] - 3005
M.C.A. (Commerce Faculty)
306 : OPERATING SYSTEM
(2013 Pattern) (Semester - III)

Time : 3 Hours] ***[Max. Marks : 50***

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Neat diagrams must be drawn whenever necessary..***

Q1) Attempt the following (Any 7): **[7 × 2 = 14]**

a) Define Logical and Physical address.

b) What are system calls used for file system?

c) Define semaphore. State its types.

d) Define Turn around time. State its Formula.

e) Define External Fragmentation.

f) What are interrupts and Exceptions?

g) Define spooling.

h) What is Thrashing

Q2) Attempt the following (Any 3): **[3 × 4 = 12]**

a) What are the services provided by operating system? Explain it.

b) Explain segmentation with paging.

c) What is Reader-writer's problem? Explain it.

d) Calculate Average Turn around Time and Average waiting time for pre-emptive SJF And Non-preemptive SJF. Consider the following processes with their arrival time & Burst time.

Process	Burst Time	Arrival Time
P_1	2	1
P_2	3	2
P_3	5	0

P.T.O.

Q3) Attempt the following (Any 3): **[3 × 4 = 12]**

a) What is Process Control Block (PCB)? Explain it.

b) List the advantages and dis-advantages of Round-Robin scheduling.

c) Explain Deadlock Recovery Methods.

d) Consider following page reference string:

1, 2, 3, 4, 1, 2, 5, 1, 2, 3, 4, 5.

assume there are 3 free frames find out page fault for Following?

i) FIFO

ii) LFU

Q4) Attempt the following (Any 3): **[3 × 4 = 12]**

a) What are the different file access method? Explain any one in ditail.

b) Explain SCAN algorithm for disk scheduling.

c) Explain Multiple Contiguous Memory Management scheme.

d) Consider the following snapshot of system A, B, C & D are resources type.

	Allocation			
	A	B	C	D
P_0	0	0	1	2
P_1	1	1	0	0
P_2	1	3	5	4
P_3	0	6	3	2
P_4	1	0	1	4

	Max			
	A	B	C	D
P_0	0	0	1	2
P_1	1	7	5	0
P_2	2	3	5	6
P_3	0	6	5	2
P_4	1	6	5	6

Available			
A	B	C	D
1	4	2	0

Total Resources			
A	B	C	D
4	14	12	12

Answer the following question using Banker's algorithm.

a) What is content of need array.

b) If system is in safe state give the safe sequence.

Total No. of Questions : 4] **SEAT No. :**

P3312 **[Total No. of Pages : 1**

[4766] - 3006
M.C.A. (Commerce Faculty) (Semester - III)
(307) : M - Commerce
(2013 Pattern) (Credit System)

Time : 3 Hours] ***[Maximum Marks : 50***

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Neat diagram must be drawn wherever necessary.***

Q1) Answer the following (Any Two) : **[14]**

a) Explain any three communication technology in detail.

b) Explain mobile voucher, coupons & loyalty cards in detail.

c) Explain role of Emerging wireless LAN's & 3G/4G wireless network.

Q2) Answer the following (Any Three) : **[12]**

a) Define M - Commerce. Explain any one emerging application in M - Commerce with example.

b) Explain concept of Regional server in transaction database access.

c) Explain pricing of mobile commerce services.

d) Explain WML & SMS.

Q3) Answer the following (Any Three) : **[12]**

a) Explain content development in mobile commerce services.

b) Explain mobile financial service management with example.

c) Explain database access in mobile environment.

d) Explain M - Commerce life cycle.

Q4) Write short note on (Any Three) : **[12]**

a) M - Commerce application - content purchase & delivery.

b) Data Reconciliation.

c) Role of wireless network in mobile commerce services.

d) Bluetooth.

♦♦♦♦

Total No. of Questions : 4] SEAT No. :

P3313 [Total No. of Pages : 1

[4766] - 3007

M.C.A. (Commerce) (Semester - III)

308 : MANAGEMENT INFORMATION SYSTEM

(2013 Pattern) (Credit System)

Time : 3 Hours] *[Max. Marks : 50*

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Draw a neat labeled diagram whenever necessary.***

Q1) Answer the following (any two) : **[2 × 7 = 14]**

a) What is Decision making? Explain its concept in details.

b) Explain OOSAD Development Life Cycle.

c) What is MIS? Explain MIS and Information Resource Management.

Q2) Answer the following (any two) : **[2 × 6 = 12]**

a) Explain Basic model of organization structure.

b) Explain DM process in detail.

c) Explain method of Data and Information collection.

Q3) Answer the following (any two) : **[2 × 6 = 12]**

a) Explain need of system Analysis of existing system.

b) What is UML? Explain its applications.

c) Explain MIS development process model in details.

Q4) Answer the following (any two) : **[2 × 6 = 12]**

a) Explain OOT and MIS.

b) What is Decision? Explain types of Decision.

c) Explain how is organization a system.

Total No. of Questions : 5]

SEAT No. :

P3280

[Total No. of Pages : 2

[4766] - 301
M.C.A. (COMMERCE) (Semester - III)
301 : ADVANCED OPERATING SYSTEM
(2008 Pattern)

Time : 3 Hours] *[Maximum Marks : 80*

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***All questions carry equal marks.***
3) ***Draw necessary diagram whenever required.***

Q1) Answer the following : (Any 4) **[16]**

a) Explain Queued and Non - Queued Messages.

b) What are different methods to get handle to device context (hdc)

c) What are the key strokes messages? Explain LPARAM & WPARAM values.

d) Differentiate between model dialog box & modeless dialog box.

e) Explain client area and Non - client area mouse messages.

Q2) State True or False and Justify your answer : (Any 4) **[16]**

a) SDK provides a comprehensive set of tools for building menus & modifying them as the program runs.

b) Functionality of child window can be modified.

c) WM - TIMER is a low priority messages.

d) Window is multitasking operating system.

e) WM - Queit message destroys the message in Queue.

Q3) Answer the following (Any 8) : **[16]**

a) Write syntax for Read system call.

b) Define caret. State its function.

c) Write any two advantages of Buffer cache.

d) Define pipe. Write its syntax.

e) What is role played by post quit message ( )

f) What are metafiles.

g) What are mounting & unmounting file system.

h) What are the functions of kernel.

i) Define shell. State its types.

j) What are the child window controls.

P.T.O.

Q4) Answer the following (Any 4) : **[16]**

a) Write a shell program to print odd & even numbers between 1 to 100.

b) Write a shell program to determine whether a year is leap or not.

c) Write a window procedure to scroll string “Welcome” in client area by using Timer method.

d) Write a window procedure for chessboard.

e) Display push button at the centre of client area, using UP - down, left - right arrow keys move it accordingly.

Q5) Answer the following (Any 4) : **[16]**

a) Define process. Explain process state transition diagram.

b) Write an algorithm for link system call.

c) Explain UNIX system architecture in detail.

d) What are the different system calls for file system? Explain with syntax.

e) Explain Allocation of Disk Blocks.

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Total No. of Questions : 8] **SEAT No. :**

P3281 **[Total No. of Pages : 1**

[4766] - 302

M. C. A. (Commerce Faculty) (Semester - III)

ENTERPRISE RESOURCE PLANNING AND MANAGEMENT

(2008 Pattern)

Time : 3 Hours] ***[Max. Marks : 80***

Instructions to the candidates:

1) ***Solve any five questions.***
2) ***All questions carry equal marks.***
3) ***Give illustrations, draw diagrams whenever necessary.***

Q1) Explain the term Enterprise Resource planning with example. Describe various reasons for growth of ERP. And also describe several benefits of ERP.

Q2) What is Bussiness Process Re-engineering? Describe its different phases with suitable diagram.

Q3) Explain the term :

a) Integrated data model

b) Bussiness Modeling

Q4) What is data warehousing? Explain its several components.

Q5) What do you mean vendor? Describe the role vendor plays for ERP.

Q6) a) Explain SAP architecture with suitable diagram.

b) Explain SAP R/3 system.

Q7) What is EDI? Describe its various components, standards and services.

Q8) Write short notes on -

a) ERP and Internet.

b) ERP implementation-Hidden cost.

c) OLAP.

d) People soft.

Total No. of Questions : 5] SEAT No. :

P3282 [Total No. of Pages : 2

[4766] - 303
M.C.A. (Commerce) (Semester - III)
BUSINESS STRATEGIES
304 : Business Strategies
(2008 Pattern)

Time : 3 Hours] *[Max. Marks : 80*

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right side indicate full marks.***

Q1) Explain the following terms: (Any Four) **[16]**

a) Business strategy

b) Mission statement

c) Horizontal integration

d) Business policy

e) Strategic Planning

f) Business Environment

Q2) Answer the following questions: (Any four) **[16]**

a) Explain the characteristics of a strategy.

b) What do you mean by SWOT Analysis?

c) State and explain the concept of Political environment.

d) Describe the Issues involved in the implementation of a strategy.

e) What do you mean by Strategic Alliance?

f) What do you mean by marketing strategy?

Q3) Answer the following questions: (Any four) **[16]**

a) State and explain the essentials of a mission statement.

b) What are the objectives of Organizational appraisal?

c) Explain the need of Environmental Scanning.

d) Describe the issues involved in the formulation of strategies.

e) Explain the concept of Value chain Analysis.

P.T.O.

Q4) Answer the following questions: (Any two) **[16]**

a) "An effective strategy is one that helps the organization to achieve its goals". Explain the statement.

b) What do you mean by competitive environment? How is competitive environments information obtained?

c) Discuss different subjective factors which influence strategic choice?

Q5) Write short notes: (Any four) **[16]**

a) Sources of information for organizational analysis.
b) Features of strategic decisions.
c) Characteristics of good control system.
d) Differentiation strategy.
e) Reasons for Mergers & acquisition.
f) Growth Strategy.

Total No. of Questions : 5]

SEAT No. :

P3283

[Total No. of Pages : 2

[4766] - 304

M.C.A. (Commerce Faculty) (Semester - III)

305 : CYBER LAW AND ETHICS

(2008 Pattern)

Time : 3 Hours] *[Max. Marks : 80*

Instructions to the candidates:

1) ***All Questions are compulsory.***

2) ***Figures to the right indicate full marks.***

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Q1) Attempt any four of the following : **[4 × 4 = 16]**

a) Explain Intellectual property in cyberspace.

b) Explain in brief retention of electronic records.

c) Explain the term controller to act as repository.

d) Give the rules for renewal of license.

e) Explain section under duties of subscribers.

Q2) Attempt any four of the following : **[4 × 4 = 16]**

a) Explain encryption with example.

b) Define and explain block cipher and stream cipher.

c) What is symmetric cryptosystem? Give some limitations of symmetric cryptosystem.

d) Explain in details Asymmetric key-operation.

e) Explain RSA algorithm

P.T.O.

Q3) Attempt any four of the following : **[4 × 4 = 16]**

a) What is Data Integrity? Explain with example.

b) Explain triple DES.

c) Give some advantages of public key encryption.

d) What is www? Explain in details.

e) Explain in brief formation of electronic contracts.

Q4) Attempt any four of the following : **[4 × 4 = 16]**

a) How cyber crimes are classified? Explain.

b) Explain the term computer as target of the crime.

c) What is computer virus? Explain.

d) Explain User Datagram Protocol (UDP) attack.

e) Explain web Based crimes.

Q5) Attempt any four of the following : **[4 × 4 = 16]**

a) Explain mistake in electronic commerce.

b) Explain e-email stalking

c) What is online Harassment? Explain.

d) Give a brief description of Bulletin Board system.

e) Explain a real problem in the virtual world concerned to cyber stalking.

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Total No. of Questions : 5] **SEAT No. :**

P3284 **[Total No. of Pages : 2**

[4766]-305

M.C.A (Commerce Faculty) (Semester - III)

306 : FINANCIAL AND INVESTMENT ANALYSIS

Time : 3 Hours] ***[Max. Marks : 80***

N.B. : ***1) All questions are compulsory.***
2) All questions carry equal marks.

Q1) What is Mutual Fund? Explain the importance of Mutual Fund as an investment opportunity for small investors in comparison with equity shares and bonds.

OR

What is Financial and Investment Analysis? Explain the various quantitative and qualitative aspects of financial analysis.

Q2) Explain the various techniques of risk reduction as a (Port folio) Manager'

OR

What is 'Diversification'? Explain the various methods of effecting diversification.

Q3) What do you understand by Portfolio Investment Performance? Explain the various components of Portfolio Investment Performance.

OR

What is Investment Process? Explain the various stages in Investment Process.

P.T.O.

Q4) What is MARKOWITZ Model? Explain the assumptions and parameters of Markowitz diversification.

OR

What is 'Industry analysis'? Explain the various factors in Industry Analysis.

Q5) Write detailed notes on any two of the following::

a) O.T.C.E.I.

b) Market Indicators

c) Risk adjustment and performance measurement.

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Total No. of Questions : 4] **SEAT No. :** [ ]

P3314 **[Total No. of Pages : 2**

[4766] - 4001

M.C.A. (Commerce) (Semester - IV)

401 : ADVANCED JAVA

(2013 Pattern) (Credit System)

Time : 3 Hours] ***[Max. Marks : 50***

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Figures to the right indicate full marks.***

Q1) Attempt any seven from following : **[7 × 2 = 14]**

a) What is JAR file?

b) What is stub?

c) Write JDBC Drivers Name?

d) What are cookies?

e) What is Beans?

f) Explain sever socket?

g) Explain Thread priorities?

h) List all JSP directives?

Q2) Attempt any three from following : **[3 × 4 = 12]**

a) Explain thread life cycle?

b) What is RMI? Explain RMI Architecture?

c) Write a servlet program to display file count?

d) Write JDBC program to delete record from student table who belong to Pune?

P.T.O.

Q3) Attempt any three from following : **[3 × 4 = 12]**

a) What is session? How to handle session in servlet programming explain with example?

b) What are beans? Explain advantages and features of beans?

c) Write JSP program to accept username and age of user and display message on the basis of age whether user is eligible to vote or not?

d) Write JDBC program to display employee names whose salary is 7,10,000/-.

Q4) Attempt any three from following : **[3 × 4 = 12]**

a) What is JSP? Explain JSP Directives?

b) Explain following :

i) Driver Manager

ii) Result Set

c) Write client side program for echo server which request server on port number 5555?

d) Create thread to display odd numbers from 1 to 999, after every 2 seconds?

Total No. of Questions : 4] **SEAT No. :**

P3315 **[Total No. of Pages : 2**

[4766] - 4002

M.C.A. (Commerce) (Semester - IV)

402 : VISUAL PROGRAMMING

(2013 Pattern) (Credit System)

Time : 3 Hours] ***[Max. Marks : 50***

Instructions to the candidates:

1) ***Neat diagrams must be drawn wherever necessary.***
2) ***Figures to the right indicate full marks.***
3) ***Assume suitable data, if necessary.***
4) ***All questions are compulsory.***

Q1) Attempt any seven of the following : **[7 × 2 = 14]**

a) What do you mean by a handle?

b) What are queued messages?

c) What do you mean by Peek Message ()?

d) What are virtual keys?

e) Explain Mapping Modes.

f) What is valid and Invalid Rectangle?

g) Differentiate between Draw Text() & TextOut()

h) What are different windows resources?

i) Explain the use of Stock Pens.

j) Explain any two GDI functions.

Q2) Attempt any three : **[3 × 4 = 12]**

a) What is Thread? Differentiate between multitasking and multithreading.

b) Explain the various ways to acquire the handle to the device context.

c) Explain Message Loop in detail?

d) Explain parameters of Create Window ().

P.T.O.

Q3) Attempt any three : **[3 × 4 = 12]**

a) What is Registration of class? Why is it necessary.

b) What is Timer? Explain the applications of timer.

c) How do you create a modal dialog box.

d) Differentiate between Pen and Brush.

Q4) Attempt any two : **[2 × 6 = 12]**

a) Write the program statements using win 32 APIs for the following (Win Main not required).

i) Display caret at the center of the client area and should be moved one character position up, down, left, right when corresponding arrow keys are pressed.

ii) Write a procedure to display two buttons '+' and '–'. The size of window should increase when '+' is pressed and should decrease when '–' is pressed.

b) Write a program to input two integer values using two edit boxes and third box to display factorial of the given values, when ok button is pushed.

c) Write short notes on (any two) :

i) ODBC

ii) WM-PAINT

iii) Hungarian Notation

Total No. of Questions : 4] SEAT No. :

P3316 [Total No. of Pages : 2

[4766] - 4003

M.C.A. (Commerce) (Semester - IV)

CS - 403 : DISTRIBUTED DATABASE SYSTEM

(2013 Pattern) (Credit System)

Time : 3 Hours] *[Max. Marks : 50*

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Figures to the right indicate full marks.***

Q1) Attempt any seven. **[7 × 2 = 14]**

a) What is Autonomy? Explain different types of Autonomy.

b) What are promises of DDBMS?

c) What is query optimization?

d) State the different steps of query processing in a DDBMS.

e) Differentiate between Horizontal fragmentation & Vertical fragmentation.

f) What are correctness rules for fragmentation?

g) What are different ways in which global directories can be stored in DDBMS?

h) Define the concept of serializability in a DDBMS.

Q2) Attempt any three : **[3 × 4 = 12]**

a) Write a note on Top-Down Approach of DDB design.

b) Explain problems area of distributed database.

c) Write a short note on the "MDBS without a GCS" architecture.

d) Write a note on "Components of DDBMS" with the help of diagram.

Q3) Attempt any three : **[3 × 4 = 12]**

a) Write a note on In-Place-Order.

b) Write a note on Timestamp Ordering protocol in case of DDBMS.

c) Which are LRM commands? Explain any one in detail.

d) Write a note on Hierarchical deadlock detection.

P.T.O.

Q4) Attempt any three : **[3 × 4 = 12]**

a) Consider the following relational schema
Student(Sno, Sname, City, Class)
Subject(Sub_no, Sub_Name)
Stud_Sub(Sno, Sub_No, Marks)
Construct optimized operator tree for the following query.

```
Select Sname, City
from Student, Subject, Stud_Sub
where Student.Sno=Stud_Sub.Sno and
Subject.Sub_no=Stud_Sub.Sub_No and
Class="S.Y. Bcs" and Sub_name="Computer I"
and Marks>80
```

b) Consider the following relational schema
Emp(Eno,Ename,Title)& Pay (Title, sal)
Let P1:Sal<50000 and P2:Sal > 50000 be two predicates. Perform a horizontal fragmentation of relation PAY to obtain fragments PAY1 and PAY2.

c) Consider relation PROJ(Pno,Panme,Budget)
Assume that PROJ relation is horizontally fragmented as

$PROJ_1 = 6_{PNO<=20}(PROJ)$
$PROJ_2 = 6_{PNO>20\text{^}PNO<=50}(PROJ)$
$PROJ_3 = 6_{PNO>50}(PROJ)$

Draw an optimized operator tree for the following query. Convert the generic tree into reduced tree considering the fragmentation format

```
Select Budget
From PROJ
Where Pno = 30;
```

d) Let Q = {q1,q2,q3} be a set of quries, A={A1,A2,A3} be set of attributes and S = {S1,S2} be a set of sites. Matrix
i) below defines the attributes usage values and matrix
ii) defines the application access frequencies. Assume that refi(qk)=1 for all qk and Si and that A1 is key attribute. Use the bond energy and vertical partitioning algorithms to obtain a vertical fragmentation of the set of attributes in A.

	A1	A2	A3
q1	1	1	0
q2	1	0	0
q3	0	1	1

(a)

	S1	S2
q1	12	0
q2	20	20
q3	0	30

(b)

Total No. of Questions : 8]

SEAT No. :

P3317

[Total No. of Pages : 2

[4766] - 4004

M.C.A. (Commerce) (Semester - II)

404 : WEB TECHNOLOGIES

(2013 Pattern) (Credit System)

Time : 3 Hours] *[Max. Marks :50*

Instructions to the candidates:

1) ***Attempt any five questions.***
2) ***Figures to the right indicate full marks.***

Q1) Answer the following.

a) Explain image map with example. **[5]**

b) Explain CSS class in detail. **[5]**

Q2) Answer the following.

a) Explain Javascript identifiers in detail. **[5]**

b) Explain PHP & Web server Architecture model. **[5]**

Q3) Answer the following.

a) Explain ordered & unordered list in detail. **[5]**

b) Write a Javascript to find Factorial of given number. **[5]**

Q4) Answer the following.

a) Write a HTML code to display following: **[5]**

<table>
<tr><td colspan="2">First</td></tr>
<tr><td>Second</td><td>Third</td></tr>
<tr><td colspan="2">Fourth</td></tr>
<tr><td>Fifth</td><td>Sixth</td></tr>
</table>

b) Write a vbscript code to display sum of digit of given number. **[5]**

P.T.O.

Q5) Answer the following.

a) Write steps for installing PHP. **[5]**

b) Explain client side web scripting in vbscript. **[5]**

Q6) Answer the following.

a) What is URL. Explain in detail. **[5]**

b) Explain text formating properties in CSS. **[5]**

Q7) Answer the following.

a) Explain SAX in detail. **[5]**

b) Explain validation of Javascript in detail. **[5]**

Q8) Answer the following.

a) Explain XML Schemas. **[5]**

b) Explain features of XML. **[5]**

Total No. of Questions : 4] **SEAT No. :**

P3318 **[Total No. of Pages : 2**

[4766] - 4005

M.C.A. (Commerce Faculty) (Semester - IV)

406 : IT PROJECT MANAGEMENT

(2013 Pattern) (Credit System)

Time : 3 Hours] ***[Max. Marks : 50***

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Figures to the right indicate full marks.***

Q1) Attempt the following (Any 7) : **[7 × 2 = 14]**

a) Define project. Give examples.

b) What are the major processes involved in project integration management?

c) Write formula for Cost Performance Index (CPI).

d) What are the processes of project cost management?

e) Enlist the tools & techniques used for quality control.

f) What are the types of power?

g) Define Project Risk.

h) Which are the processes involved in project human resource management?

i) What you mean by quality assurance?

Q2) Attempt the following (Any 3) : **[3 × 4 = 12]**

a) Explain project life cycle & its phases.

b) Write note on Risk avoidance.

c) Explain COCOMO model.

d) Explain role of testing in software development.

P.T.O.

Q3) Attempt the following (Any 3) : **[3 × 4 = 12]**

a) Explain team development planning in project Human Resource Management.

b) Write note on configuration management.

c) What are the three main categories of outputs of quality control? Explain it.

d) What is Risk Response control? What is the need of it?

Q4) Attempt the following (Any 3) : **[3 × 4 = 12]**

a) Explain different types of cost estimation.

b) Write note on risk management.

c) What is the user role in system implementation?

d) Explain project organization structure with its merits and demerits.

Total No. of Questions : 4] SEAT No. :

P3319 [Total No. of Pages : 2

[4766] - 4006

M.C.A. (Commerce Faculty) (Semester - IV)

407 : CYBERLAW AND INFORMATION SECURITY

(2013 Pattern) (Credit System)

Time : 3 Hours] *[Max. Marks : 50*

Instructions to the candidates:

1) ***Neat diagrams must be drawn whenever necessary.***
2) ***Figures to the right indicate full marks.***

Q1) Define and explain in brief any seven of the following : **[7 × 2 = 14]**

a) Copyright.

b) Importance of Information security.

c) Attribute of electronic Records.

d) Caeser cipher.

e) Cryptology.

f) Cipher.

g) SSL Record Format.

h) Trade Marks.

Q2) Discuss any three of the following : **[3 × 4 = 12]**

a) What are the essential ingredients of a symmetric cipher.

b) Briefly define the caeser cipher.

c) Explain the basic principles of Information Security.

d) Infringement of patent and remedies.

P.T.O.

Q3) Discuss any three of the following : **[3 × 4 = 12]**

a) Explain IP security Architecture.

b) Discuss simple columnar transposition technique with example.

c) Explain Brute force search technique.

d) Briefly explain IPR.

Q4) Discuss any three of the following : **[3 × 4 = 12]**

a) Explain the ESP packet format.

b) What are the principal elements of a public-key cryptosystem.

c) What is a transposition cipher?

d) What is steganography?

Total No. of Questions : 8] **SEAT No. :**

P3320 **[Total No. of Pages : 3**

[4766] - 4007

M.C.A. (Commerce Faculty) (Semester - IV)

408 : ADVANCED NETWORKING

(2013 Pattern) (Credit System)

Time : 3 Hours] ***[Max. Marks : 50***

Instructions to the candidates :

1) ***Answer any five questions.***
2) ***Figures to the right side indicate full marks.***

Q1) Attempt the following.

a) How SHTTP is different from SSL? **[4]**

b) What are the problems for full implementation of voice over IP? Do you think we will stop using the telephone network very soon? **[4]**

c) What is flow lable? State its significance. **[2]**

Q2) Attempt the following.

a) Explain how certificate-based authentication work. **[4]**

b) Discuss double DES? What is the idea behind meet in the middle attack? **[4]**

c) State and define types of multiplexing in the transport layer. **[2]**

P. T. O.

Q3) Attempt the following.

a) Write a short note on electronic money transfer. **[4]**

b) Define a routing protocol. Explain the types of routing with their respective routing protocols & implementations. **[4]**

c) Calculate the HLEN value if the total length is 1200 bytes, 1176 of which is data from upper layer. **[2]**

Q4) Attempt the following.

a) What is improvement over clear text passwords? What are its drawbacks? **[4]**

b) Alice meets Bob & says zewfidrkzfe. If she is using modified version of caesar cipher, what does she want to convey? **[4]**

c) List all SET participants. **[2]**

Q5) Attempt the following

a) Given two prime numbers P=19 & Q=7. Find out N,E & D in an RSA encryption process. **[4]**

b) Why does UDP exist? Would it not have been enough to just let user processes send raw IP packets? Explain in detail. **[4]**

c) What is Kerberos? State the Parties involved in it. **[2]**

Q6) Attempt the following

a) Explain the structure of a router. **[4]**

b) What would be the transformation of message HAPPY BIRTHDAY TO YOU using railfence technique? **[4]**

c) In the standard Ethernet, if the maximum propagation time is 25.6 μ s., what is the minimum size of frame? **[2]**

Q7) Attempt the following

a) Write a short note on 3-D secure protocol. **[5]**

b) What are the typical contents of digital certificates? **[5]**

Q8) Attempt the following

a) List the different technologies used to connect two remote devices in point to point WAN. Explain any one in detail. **[5]**

b) Write a note on ICMPV4 package. **[5]**

Total No. of Questions : 5]

SEAT No. :

P3285

[Total No. of Pages : 3

[4766] - 401

M.C.A. (Commerce) (Semester - IV)

401 : ADVANCED DATABASE MANAGEMENT SYSTEM

(2008 Pattern)

Time : 3 Hours] *[Max. Marks : 80*

Instructions to the candidates:

1) ***Neat diagrams must be drawn wherever necessary.***
2) ***Figures to the right side indicate full marks.***
3) ***Assume suitable data if necessary.***

Q1) Write a note on (any four) : **[4 × 4 = 16]**

a) SOAP

b) HITS Algorithm

c) Vertical Fragmentation

d) Partitioned Join

e) KDD

Q2) Attempt any four of the following : **[4 × 4 = 16]**

a) Differentiate between RDBMS and ORDBMS.

b) Explain R-Trees in Detail.

c) What are responsibilities of Transaction Manager and Transaction Coordinator?

d) What is the Data Mart? What are the Advantages and Disadvantages of the Data Mart?

e) What is Multimedia database?

P.T.O.

Q3) Attempt any four of the following : **[4 × 4 = 16]**

a) What are applications of Spatial data?

b) Differentiate between OLAP vs. OLTP.

c) What are characteristics of object oriented database?

d) What is the use of vector space model?

e) What is replication? What are advantages and disadvantages?

Q4) Attempt any four of the following : **[4 × 4 = 16]**

a) Define :

i) Point data

ii) Region

iii) Region data

vi) GIS

b) What is distributed database system? What are advantages and disadvantages?

c) Write a short note on an Object.

d) Write a short note on Single-lock manager approach in distributed database system.

e) What is XML DTD?

Q5) Attempt any four of the following : **[4 × 4 =16]**

a) Why there is need of parallel database system? Differentiate between shared disk and shared memory architecture.

b) Define :

i) Recall

ii) Lexicon

iii) Precision

iv) Term Frequency

c) Write a short note on Data Warehouse.

d) Consider the following schema

Machine(Mno, Mname, Mcost)

Perform horizontal fragmentation of machine relation using following predicates

P1: $\sigma_{Mcost<1000}$

P2: $\sigma_{Mcost>= 1000 \text{ and } Mcost<5000}$

P3: $\sigma_{Mcost>= 5000}$

e) Perform vertical fragmentation of project relation given below project (pno, pname, startdate, budget, status)

According to the following requirement.

i) Site 1 requires information about pno, pname, budget.

ii) Site 2 requires information about startdate, status.

● ● ●

Total No. of Questions : 5] **SEAT No. :**

P3286 **[Total No. of Pages : 2**

[4766] - 402

M.C.A. (Commerce) (Semester - IV)

402 : DATA CENTER TECHNOLOGIES

(2008 Pattern)

Time : 3 Hours] ***[Max. Marks : 80***

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Figures to the right side indicate full marks.***
3) ***Assume Suitable data if necessary.***

Q1) Attempt following (any four) : **[4 × 4 = 16]**

a) What guidelines are used for planning a datacenter?

b) What is network monitoring? Explain In-band and out-band monitoring.

c) Explain any two SPEC benchmarks in detail.

d) What are the different phases of capacity planning? Explain any one of them in detail.

e) Which factors supports to maintain high availability inside datacenter?

Q2) Attempt following (any four) : **[4 × 4 = 16]**

a) What do you mean by 'build budget' and 'run budget'? What things are taken in consideration to decide budget for datacenter?

b) What are the advantages of load balancing?

c) What are the drawbacks of complex cluster configuration?

d) What is logical security within datacenter?

e) Explain following:

i) TPC-H benchmark

ii) TPC-W benchmark

P.T.O.

Q3) Attempt following (any four) : **[4 × 4 = 16]**

a) Enlist different automation tools. Explain any three of them in detail.

b) Explain various components provided by ISP within datacenter.

c) How to estimate power needs for datacenter?

d) Explain following cluster components

i) Adapter SCSI ID requirement

ii) Local disks

e) What is system administration? Explain various duties of system administrator.

Q4) Attempt following (any four) : **[4 × 4 = 16]**

a) What things are taken in consideration to make configuration and maintenance easy within datacenter?

b) Why there is need to maintain proper environment within datacenter?

c) Explain different aspects of system performance.

d) Enlist various methods of placing hardware racks within datacenter. Explain any one method in detail.

e) What is server sizing? Why server sizing and capacity planning are difficult and produces inaccuracies?

Q5) Attempt following (any four) : **[4 × 4 = 16]**

a) Hardware based load balancing methods.

b) Private Heartbeat Networks

c) Generators

d) Modular cabling Design.

e) Asymmetric two node cluster.

Total No. of Questions : 5] SEAT No. :

P3287 [Total No. of Pages : 2

[4766] - 403

M.C.A. (Commerce) (Semester - IV)

403 : WEB ENABLING SYSTEM AND BUSINESS APPLICATION

(2008 Pattern)

Time : 3 Hours] *[Max. Marks : 80*

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Figures to the right side indicates full marks.***
3) ***Assume suitable data if necessary.***
4) ***Answer of sub questions of each questions should be attempted at one place. It should not be written separately.***

Q1) Attempt any Four : **[4 × 4 = 16]**

a) Explain e-business models.

b) How Database Connection is achieved in Java?

c) Write a note on Design pattern.

d) Explain Model View Controller (MVC) Architecture.

e) Explain Client Server Technology.

Q2) Attempt any Four : **[4 × 4 = 16]**

a) Write a note on

i) e-commerce ii) e-business

b) Explain Command Pattern.

c) Explain doGet( ) and doPost( ) Method.

d) Is HTML page a web component? Justify.

e) Explain J2EE Architecture.

Q3) Attempt any Four : **[4 × 4 = 16]**

a) Explain JDBC Architecture.

b) Give difference between JSP & Servlet.

c) Explain types of e-business.

d) What is the role of XML in servlet?

e) Explain mediator pattern.

P.T.O.

Q4) Attempt any Four : **[4 × 4 = 16]**

a) Differentiate between HTML and XML.

b) Write steps for creating a Java Bean Application.

c) Why Adapters are used for XML in Business System?

d) Write steps for developing Web-based Applications using Servlet.

e) Explain disadvantages of bean.

Q5) Attempt any Four : **[4 × 4 = 16]**

a) Create a JSP Page which inserts the current date and time in web page.

b) Write a JDBC program to update phone number of an employee.

c) Create a XML File that stores information about five actor and five movies.

d) Write a program in Java using Servlet which accept user login information (ie UserID, Password) and check whether entered user is valid or not valid.

e) Write a progam in Java using JSP which accept number and check whether the entered number is perfect number.

Total No. of Questions : 5] **SEAT No. :**

P3288 **[Total No. of Pages : 2**

[4766] - 404

M.C.A. (Commerce) (Semester - IV)

405 : CLIENT/SERVER TECHNOLOGY

(2008 Pattern)

Time : 3. Hours] ***[Max. Marks : 80***

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right side indicate full marks.***
4) ***Use of Calculator is allowed.***
5) ***Assume suitable data if necessary.***

Q1) Attempt Any Four: **[4 × 4 = 16]**

a) What are the different types of server? Explain.

b) What is server -to-server middleware? Explain with example.

c) Write a short note on protocol matchmaker.

d) How to connect to a database using the connection object?

e) What is frame Relay? Explain.

Q2) Attempt Any Four: **[4 × 4 = 16]**

a) Write a short note on small shops and department?

b) Explain a modem Backbone with Bridge, Routers and Gateway.

c) Explain Clustering Architecture.

d) What are the advantages and disadvantages of JavaScript.

e) Explain two-way message queuing.

Q3) Attempt Any Four: **[4 × 4 = 16]**

a) Write a JavaScript code for displaying clock on the browser Window.

b) Write a ASP code to insert record of a student in database. Data has to be accepted from HTML page. Student Tabel-rollno, name, address.

c) Write a JavaScript to accept two numbers from user and display them in textboxes. Find the max. of these number & display result in third textbox after clicking a button.

d) Write a program using a ASP script to for web page to display the following

#

# #

# # #

e) Write a program using JavaScript which shows any four string manipulation option.

Q4) Attempt Any Four: **[4 × 4 = 16]**

a) Explain Lock Type in ASP?

b) Write a short note on document object model.

c) What is difference between GUI and Object Oriented User Interface.

d) What is WAN? Explain Home-to-WAN connection.

e) What is fat Server? Explain.

Q5) Attempt Any Four: **[4 × 4 = 16]**

a) Define term

i) BandWidth

ii) Peer-to-peer communication.

b) Explain cellular Digital packet data and private packet radio provider.

c) Write a short note on Rapid prototype.

d) What is pipe? Give benefits of pipes by using platform.

e) Explain Application and Session Object.

Total No. of Questions : 5] SEAT No. :

P3289 [Total No. of Pages : 2

[4766] - 405
M. C. A. (Commerce) (Semester - IV)
406 :Knowledge Management for Business
(2008 Pattern)

Time : 3 Hours] *[Max. Marks : 80*

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Figures to the right indicate full marks.***
3) ***Assume Suitable data if necessary.***
4) ***Answer of sub questions of each questions should be attempted at one place. It should not be written separately.***

Q1) Attempt any four : **[4 × 4 = 16]**

a) Who is CKO? List the responsibilities of CKO.

b) Differentiate between AI and Natural Intelligence.

c) Explain difficulties in knowledge acquisition.

d) What are the advantages and limitations of rule representation?

e) Describe the general process of uncertainty?

Q2) Attempt any four : **[4 × 4 = 16]**

a) Why expert system fails?

b) How organizations can motivate employee to share knowledge?

c) Define AI? Explain any two areas of AI.

d) Explain the relation between Expert system and internet?

e) Give an example that illustrates the difference between propositional logic and predicate logic?

P.T.O.

Q3) Write short note on (any four) : **[4 × 4 = 16]**

a) Feasibility Study.

b) Semantic Network.

c) Induction table.

d) Knowledge repository.

e) Methods of knowledge acquisition.

Q4) Attempt any four : **[4 × 4 = 16]**

a) Describe knowledge management success factor?

b) Define Knowledge evolution, validation, verification of knowledge.

c) What is meta knowledge? How it is related to the explanation facility?

d) Compare shallow knowledge and deep knowledge.

e) Explain cyclic model of knowledge management.

Q5) Attempt any two : **[2 × 8 = 16]**

a) Explain backward chaining with example?

b) Explain structure of Expert system?

c) Explain project initialization phase?

Total No. of Questions : 5] **SEAT No. :**

P3290 **[Total No. of Pages : 2**

[4766]-501

M.C.A.(Commerce) (Semester - V)

501 : CONTENT MANAGEMENT SYSTEM

(2008 Pattern)

Time : 3 Hours] ***[Max. Marks : 80***

Instructions to the candidates :

1) ***Draw neat diagrams and screenshots wherever necessary.***
2) ***Figures to the right side indicate full marks.***

Q1) Attempt any FOUR of the following : **[16]**

a) Explain-Content is not data.

b) Explain structure by type.

c) While organizing the information into content, which activities it involves?

d) What is Moodle? Explain any three principles of Moodle.

e) What is CMS? CM is Collection, Management and Publishing - explain.

Q2) Attempt any FOUR of the following : **[16]**

a) Explain 'Conversion' from collection system with diagram.

b) How to gauge the complexity by knowing the 'number of publications'.

c) Explain Web CMS with diagram.

d) Explain-Moodle in education and training.

e) List the categories of formatting. Explain - Formatting by method.

P. T. O.

Q3) Attempt any FOUR of the following : **[16]**

a) Explain - Content is information put to use.

b) Explain other publications of publishing system.

c) How to gauge the complexity by Amount of Content.

d) Explain - CM is Distributing Business Value.

e) Explain - Rendering Format.

Q4) Attempt any FOUR of the following : **[16]**

a) Content is Named Information - Explain.

b) Explain Administration system.

c) State and explain any four myths about teaching with Moodle.

d) State and explain types of Information.

e) How to gauge the complexity by size of Contribution.

Q5) Write the steps for the following in Joomla : (Any FOUR) **[16]**

a) Create a Website for your college course and Add a new article having subjects of MCA(Commerce).

b) Create a website for Car Showroom and add Meta Tag to it.

c) Create a New User and assign Roles to it.

d) Create a website for Wrist Watch Showroom and Edit the prizes of watches.

e) Create a website and Delete any old model from it.

Total No. of Questions : 5] **SEAT No. :**

P3291 **[Total No. of Pages :4**

[4766]-502
MCA (Commerce) (Semester - V)
502 : DISTRIBUTED DATABASE SYSTEM
(2008 Pattern)

Time : 3 Hours] ***[Max. Marks : 80***

Instructions to the candidates:

1) ***Neat diagrams must be drawn wherever necessary.***
2) ***Figures to the right side indicate full marks.***
3) ***Assume Suitable data if necessary.***

Q1) Write a note on. (Any Four) **[4 × 4 = 16]**

a) Tp-Monitor Architecture

b) Mixed Fragmentation

c) E-Commerce

d) Quad-Trees

e) DBMS Performance Benchmarks

Q2) Attempt Any Four **[4 × 4 = 16]**

a) Explain different types of spatial queries.

b) Explain Nested and Multilevel transactions with example.

c) What is distributed transaction? Explain ACID properties of transaction.

d) What is deadlock? Explain False deadlock with example.

e) Write a note on parametric queries.

P.T.O.

Q3) Attempt Any Four. **[4 × 4 = 16]**

a) What are objectives of the design of data distribution?

b) Write a note on query optimization.

c) What are different alternatives for allocation of catalog?

d) What is distributed database system? What are its advantages and disadvantages?

e) Define:

i) Simple Predicates

ii) Minterm Predicates

Q4) Attmpt Any Four. **[4 × 4 = 16]**

a) What is log record? Which are different fields of log records? What is use of log record?

b) Which are optimistic methods for distributed concurrency control?

c) Write a note on deadlock detection.

d) What is use of catalog?

e) Define:

i) Local Transaction

ii) Global Transaction

iii) Join Graph

iv) DWFG

Q5) Attmpt Any Four: **[4 × 4 = 16]**

a) Transaction T1 and T2 are executing at site 1. Transaction T3 and T4 are executing at site 2. Transaction T5 and T6 are executing at site 3. Transaction T1 is waiting for T3. Transaction T3 is waiting for T4. Transaction T4 is waiting for T6. Transaction T6 is waiting for T5. Transaction T5 is waiting for T2. Transaction T2 is waiting for T1. Draw LWFG and DWFG. Detect the deadlock.

b) Consider a relational schema
Project(pno, pname, startdate, budget, status)
Perform Horizontal Fragmentation of Project relation using following predicates.
P1 = σ budget < 100000 and σ status = 'Incomplete'

P2 = σ budget > = 100000 and σ budget < = 500000 and σ status ='complete

P3 = σ budget > 500000

c) Consider a relational schema

Supplier(sid, sname, addr)

Parts(pid, pname, pdesc)

S_P (sid, pid, cost)

Draw the simple and optimized operator tree for the following query.

Select sname

From Supplier, Parts, S_P

Where cost < 1000

And addr = 'Mumbai' and pname = 'Keyboard'

And Supplier. sid =S_P. sid and Parts. pid=S_P. pid.

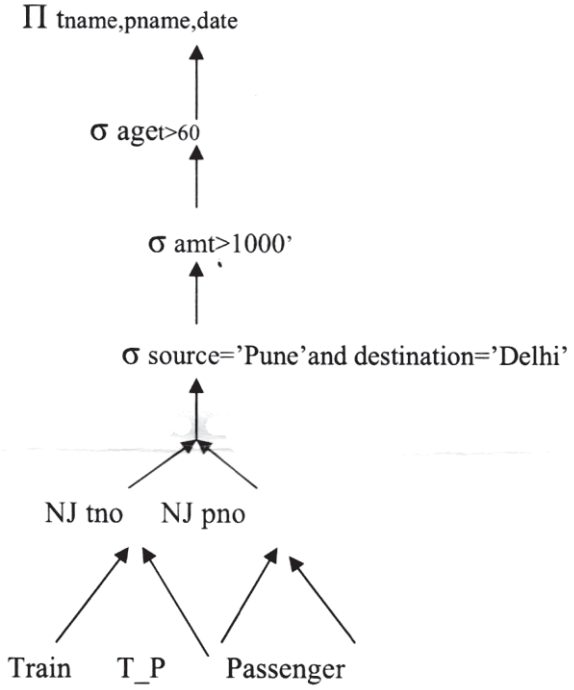
d) Consider a relational schema

Train (tno, tname, dtime, atime, source, destination)

Passenger (pno, pname, addr, age, gender)

T_P(tno, pno, seatno, amt, date)

Convert the following simple operator tree into optimized operator tree.



e) Consider a relational schema

Preson (pno, pname, byear, income) is horizontally fragmented as

Person 1 = σ income < 10000

Person 2 = σ income > = 10000 and income<=20000

Person 3 = σ income > 20000

Reduce the following query.

Select * from person where income=15000

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Total No. of Questions : 5]

SEAT No. :

P3292

[Total No. of Pages :2

[4766]-503

M.C.A (Commerce Faculty) (Semester - V)

503 : E - COMMERCE PRACTICES AND TECHNOLOGIES

Time : 3 Hours] *[Max. Marks : 80*

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***All questions carry equal marks.***

Q1) Attempt any four of the following : **[4*4 = 16]**

a) Explain E-business in detail and explain any one business model.

b) Enlist eight key elements of business model and explain any four in detail.

c) Define Personalization. Explain Personalization approaches in detail.

d) What is Portal? Explain different types of portals.

e) Explain hacking and types of hackers in detail.

Q2) Attempt any four of the following: **[4*4 = 16]**

a) Write note on online credit card transaction

b) Explain encryption in detail.

c) Explain how to host website?

d) Explain any two types of auction in detail.

e) Explain tools for Interactivity and active content.

Q3) Attempt any four of the following: **[4*4 = 16]**

a) Explain Analysis and Design phase for building E-commerce website.

b) Explain the need of E-commerce and give advantages of E-commerce.

c) Explain Digital Wallet in detail.

d) Explain Phishing and Spoofing in detail.

e) Write note on Digital envelopes and Digital certificates.

P.T.O.

Q4) Attempt any four of the following: **[4*4 = 16]**

a) Write a note on EBPP model.

b) Write a note on credit card fraud.

c) Explain C2C and B2C business model in detail

d) Explain auction with example and give benefits of auction.

e) Define Encryption and explain Asymmetric Key encryption in detail.

Q5) Attempt any two of the following: **[2*8 = 16]**

a) What are some of the risks of using PayPal when compared to credit cards and debit cards?

b) What difference would it make if existing music labels disappear for lack of revenue?

c) Discuss-PayPal is the largest Peer-to-Peer Payment service.

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Total No. of Questions : 5]

SEAT No. :

P3293

[Total No. of Pages : 3

[4766]-504

M.C.A. (Commerce) (Semester - V)

DATA MINING AND WAREHOUSING (504)

(2008 Pattern)

Time : 3 Hours] *[Max. Marks : 80*

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right side indicate full marks.***
4) ***Use of Calculator is allowed.***

Q1) Answer the following (Any four) **[16]**

a) Describe the need for developing a Data Warehousing.

b) What is business intelligence? Different applications of business intelligence.

c) Difference between Data Mart and Data Warehouse.

d) Explain different types of server used for data warehouse.

e) Explain various database architecture used in data warehouse for parallel processing.

Q2) Answer the following (Any four): **[16]**

a) Explain basic data mining tasks with an example.

b) Explain need of data preprocessing.

c) What is data mining metrics?

d) How classification is different from prediction?

e) Explain need of pentaho report designer.

P.T.O.

Q3) Answer the following (Any two): **[16]**

a) Apply apriory algorithm for generating large item set on the following data set

Transaction ID	Item Purchased
T1	1,3,4
T2	2,3,5
T3	1,2,3,5
T4	2,5

b) Explain warehouse architecture with suitable diagram.

c) List the advantages and disadvantages of data mart.

Q4) Answer the following (Any Two): **[16]**

a) What is Data Integration? Briefly describe issues which are to be considered during data integration.

b) Write the difference between data mining and KDD process.

c) The following table consist of training data from customer database the data have been generalized following tupple having values like RID, AGE, INCOME, STUDENT, CREDIT_RATING, CLASS: BUYS_COMP Slove with naive bayesian classification.

X = (Age = Youth, Income = Medium, Student =Yes, Credit_rating = Fair)

RID	AGE	INCOME	STUDENT	CREDIT_RATING	BUYS_COMP
01	Youth	High	No	Fair	No
02	Youth	High	No	Excellent	No
03	Mid_Age	High	No	Fair	Yes
04	Senior	Medium	No	Fair	Yes
05	Senior	Low	Yes	Fair	No
06	Senior	Low	Yes	Excellent	Yes
07	Mid_Age	Low	Yes	Excellent	No
08	Youth	Medium	No	Fair	Yes
09	Youth	Low	Yes	Fair	Yes
10	Senior	Medium	Yes	Fair	Yes
11	Youth	Medium	Yes	Excellent	Yes
12	Mid_Age	Medium	No	Excellent	Yes
13	Mid_Age	High	Yes	Fair	Yes
14	Senior	Medium	No	Excellent	No

Q5) Write short note on (Any four): **[16]**

a) Web Mining.

b) Clustering in Data Mining.

c) Star Schema.

d) Hierarchical Method.

e) Storage Media in Data Warehouse.

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Total No. of Questions : 5]

SEAT No. :

P3294

[Total No. of Pages :7

[4766]-505
M.C.A. (Commerce Faculty) (Semester - V)
MATHEMATICS
506 : Operations Research
(2008 Pattern)

Time : 3 Hours] *[Max. Marks : 80*

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Figures to the right indicate full marks.***
3) ***Use of non-programmable Calculator is allowed.***
4) ***Symbol have their usual meanings.***

Q1) Attempt any four of the following : **[16]**

a) How does operations reasearch assist management in decision making?

b) Explain the following terms:

i) Feasible solution

ii) Slack variables

iii) Surplus variables

iv) Basic solution

c) Solve the following L.P.P. by graphical method.

Minimize $Z = 5x_1 + 8x_2$

Subject to the constraints

$x_1 \leq 4$

$x_2 \geq 2$

$x_1 + x_2 \geq 5$

$x_1 \geq 0, x_2 \geq 0$

P.T.O.

d) Show that the following L.P.P. has unbounded solution

Maximize $Z = 3x_1 + x_2 - 4x_3 + 7x_4$

Subject to

$$2x_1 + 5x_2 - 6x_3 + x_4 \geq -15$$
$$3x_1 - 2x_2 + 4x_3 + 2x_4 \leq 10$$
$$4x_1 - 3x_2 - 4x_3 + 3x_4 \leq 20$$
$$x_1, x_2, x_3, x_4 \geq 0$$

e) Discuss the various steps involved in the applications of PERT and CPM.

f) Obtain initial basic feasible solution of the following transportation problem by North west corner method.

Ware house → / Factory ↓	W_1	W_2	W_3	W_4	Supply
F_1	14	25	45	5	6
F_2	65	25	35	55	8
F_3	35	3	65	15	16
Demand	4	7	6	13	

Also find the corrresponding transportation cost.

Q2) Attempt any four of the following : **[16]**

a) Write the standard form of the L.P.P.

Maximize $Z = x_1 - x_2 + 2x_3$

Subject to

$$x_1 - x_3 \geq 4$$
$$x_2 + 2x_3 \leq 5$$
$$x_1 - x_2 + x_3 = 3$$
$$x_1, x_2, x_3 \geq 0$$

b) Define :

i) Event

ii) Sucessor Activity Network.

c) Write the dual of the following L.P.P.

Maximize $Z = x_1 + 2x_2 - x_3$

Subject to

$$2x_1 - 3x_2 + 4x_3 \leq 5$$
$$2x_1 - 2x_2 \leq 6$$
$$3x_1 - x_3 \geq 4$$
$$x_1, x_2, x_3, \geq 0$$

d) Solve the following assignment problem for minimization.

Machines

Jobs	I	II	III	IV
A	12	30	21	15
B	18	33	9	31
C	44	25	24	21
D	23	30	28	14

e) Find initial basic feasible solution of the following T.P.by matrix minima method.

Destination → / Origin↓	D_1	D_2	D_3	D_4	Supply
O_1	30	25	40	20	100
O_2	29	26	35	40	250
O_3	31	33	37	30	150
Demand	90	160	200	50	

Also find the corresponding transportation cost.

f) Solve the following game by dominance principle.

	1	2	3	4	5
I	1	3	2	7	4
II	3	4	1	5	6
III	6	5	7	6	5
IV	2	0	6	3	1

Q3) Attempt any four of the following : **[16]**

a) A business firm produces two types of products P and Q. The average profit for the product P is Rs. 100 per ton and that for product Q is Rs. 70 per ton. The plant consist of three production departments A, B and C. The equipment in each department is to be used for 8 hours a day. Product P requires 2 hours in department A and 1 hour in department C per ton. Product Q requires 1 hour in department B and 1 hour in department C per ton. Formulate this problem as LPP for maximum profit.

b) Convert the following transportation problem into linear programming problem.

Destination → / Origin ↓	D_1	D_2	Supply
O_1	8	12	21
O_2	3	11	24
Demand	16	29	

c) Define the following terms with reference to Transportation problems

i) Unbalanced transportation problem

ii) Initial basic feasible solution

iii) Optimum solution

iv) Dummy destinations.

d) Explain the following terms in PERT/CPM.

i) Earliest time

ii) Latest time

iii) Critical Path

e) Solve the following assignment problem for maximization.

	A_1	A_2	A_3	A_4
I	100	140	280	70
II	130	160	200	60
III	80	130	300	90
IV	150	110	250	50

f) Explain the steps involved in obtaining the optimum solution from initial basic feasible solution of a transportation problem by MODI metod.

Q4) Attempt any two of the following : **[16]**

a) Solve the following L.P.P. by using Big M method.

Maximize $Z = 60\,x_1 + 96\,x_2$

Subject to

$2\,x_1 + 4\,x_2 \geq 40$

$3\,x_1 + 3x_2 \geq 35$

$x_1, x_2 \geq 0$

b) For the following transportation problem obtain the initial basic feasible solution by VAM (vogel's Approximation Method)

To→ / From↓	D_1	D_2	D_3	D_4	D_5	Supply
O_1	80	69	108	64	61	12
O_2	47	100	72	65	40	16
O_3	16	103	87	36	94	20
O_4	86	15	57	19	25	8
O_5	27	20	72	94	19	8
Demand	16	14	18	6	10	

Also find the corresponding transportation cost.

c) Discuss the role of sensitivity analysis in linear programming. Under what circumstances is it needed and under what conditions do you think it is not necessary?

Q5) Attempt any two of the following : **[16]**

a) i) Define the following terms

1) Mixed strategy

2) Pay-off matrix

3) Value of the game

4) Saddle point

ii) Explain any four points on relationship between primal and dual problems.

b) For the game with the following pay-off matrix, determine the optimal strategies and value of the game.

		Player B	
		I	II
Player A	I	20	–6
	II	–4	3

c) What is goal programming ? Clearly states its assumptions.

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