Seat No.

[4966]-101

M.C.A. (Commerce Faculty) (First Semester) EXAMINATION, 2016
SYSTEMS ORGANISATION AND MANAGEMENT
(2008 PATTERN)

Time : Three Hours　　　　　　　　　Maximum Marks : 70

N.B. :— (*i*) Attempt *All* questions.

(*ii*) *All* questions carry equal marks.

1. Answer the following (any *four*) :　　　　　　　[16]

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

 (*b*) Write the difference between Sales and Marketing.

 (*c*) What is directing ?

 (*d*) Write a note on SWOT analysis.

 (*e*) Define management. State characteristics of management.

2. Explain the following terms (any *four*) :　　　　　　　[16]

 (*a*) System

 (*b*) Job enrichment

 (*c*) Marketing policies

 (*d*) Leadership

 (*e*) Planning

 (*f*) Decision-making.

3. Answer the following (any *four*) : [16]

   (*a*) What is the role of internet in system organisation ?

   (*b*) Define customer relation management.

   (*c*) State importance of management.

   (*d*) Write a note on effective communication.

   (*e*) Explain the concept of supply chain management.

4. Attempt any *four* of the following : [16]

   (*a*) What is the role of internet in system organisation ?

   (*b*) Write a note on effective communication.

   (*c*) Explain the functions of midle level management.

   (*d*) Describe in detail "Maslow's need hierarchy theory."

   (*e*) What is MIS.

5. Write short notes (any *four*) : [16]

   (*a*) Software and hardware

   (*b*) Formal and informal organisation

   (*c*) Expert systems

   (*d*) Characteristics of organisation

   (*e*) Decision Support Systems (DSS)

Total No. of Questions—5]　　　　　[Total No. of Printed Pages—4

Seat
No.

[4966]-102

M.C.A. (Commerce Faculty) (First Semester)

EXAMINATION, 2016

103 : PROGRAMMING FUNDAMENTALS

('C' Programming)

(2008 PATTERN)

Time : Three Hours　　　　　　Maximum Marks : 80

N.B. :— (*i*)　*All* questions are compulsory.

(*ii*)　*All* questions carry equal marks.

(*iii*)　Assume suitable data, if necessary.

1.　Attempt any *four* :　　　　　　　　　　[4×4=16]

　(*a*)　Describe structure of a 'C' program.

　(*b*)　Explain the following with proper example :

　　　(*i*)　Comments

　　　(*ii*)　Constants

　(*c*)　Explain arithmetic and logical operators in detail.

　(*d*)　What is preprocessor directive ? Explain any *one* of them.

　(*e*)　Differentiate between break and continue statements.

2.　Attempt any *four* :　　　　　　　　　　[4×4=16]

　(*a*)　Write a 'C' program to convert a given character into uppercase and vice versa.

(b) Write a 'C' program to generate the following pattern for *n* lines :

```
        1
        3   5
        7   9   11
```

(c) Write a 'C' program to calculate factorial of a given number using recursion.

(d) Write a 'C' program to print Armstrong number between 1 to 100.

(e) Write a 'C' program to display multiplication table of a given number.

3. Attempt any *four* :   [4×4=16]

(a) Explain static and register variables in 'C'

(b) Explain row and column major memory representation of an array.

(c) Write a short note on Dynamic memory allocation.

(d) Explain strlen( ) and strcpy( ) function with proper syntax.

(e) Explain array of structure in detail.

4. Trace the output (any *four*) :   [4×4=16]

(a)
```
#include <stdio.h>
Void main( )
{
    int a=300, b=200, c=100;
    if (a>=400)
    b=300;
    c=200;
    printf ("%d%d%d\n", a, b, c);
}
```

(b)
```
#include <stdio.h>
#define SWAP(a,b) int t; t=a; a=b; b=t;
void main( )
{
    int a=10, b=12;
    SWAP(a, b);
    printf ("a=%d, b=%d\n", a, b);
}
```

(c)
```
#include <stdio.h>
void main( )
{
    char*p;
    p="hello";
    printf("%S\n", *&*&p);
}
```

(d)
```
#include<stdio.h>
void main( )
{
    char ch='A';
    printf("\n%2d%2d", size of (ch), size of ('A'));
}
```

(e)
```
#include<stdio.h>
void main( )
{
    int a[5]={2,3};
    printf("\n%d%d%d",a[2], a[3], a[4]);
}
```

5. Attempt any *four* : [4×4=16]

   (*a*) Write a 'C' program to create a student structure having fields stud-name and address. Accept the details of 'n' students into the structure, rearrange the data in alphabetical order of stud-name and display the result.

   (*b*) Write a 'C' program to accept three integers as command line orguments and find the maximum, minimum and average of the three numbers. Display error message if the number of arguments entered are invalid.

   (*c*) Write a 'C' program to accept 'n' names from user. Store these names into 2-D array. Accept the name from user and search whether the name is present in an array or not.

   (*d*) Write a 'C' program to calculate sum of non-diagonal elements of m × n matrix using dynamic memory allocation.

   (*e*) Write a 'C' program to copy one file to another file. While doing so replace all lowercase character to their equivalent uppercase character.

Total No. of Questions—5]　　　　　[Total No. of Printed Pages—4+2

Seat
No.

[4966]-103

MCA (Part-I) (Commerce Faculty) (First Semester) EXAMINATION, 2016

STATISTICAL AND NUMERICAL METHODS

(2008 PATTERN)

Time : Three Hours　　　　　**Maximum Marks : 80**

N.B. :—　(i)　*All* questions are compulsory.

　　　　(ii)　Figures to the right indicate full marks.

　　　　(iii)　Use of Statistical table and calculator is allowed.

　　　　(iv)　Symbols have their usual meanings.

1.　Attempt any *three* of the following :　　　　　[15]

　(a)　Find the root of the equation

$$x^4 + x^2 - 80 = 0$$

　　　between $x = 2.8$ and 3 by using Bi-section method perform three iteration.

　(b)　Use Newton-Raphson method to find the root of the equation :

$$x^3 - 5x - 3 = 0.$$

　(c)　State general quadrature formula for equidistant ordinates for numerical Integration.

　(d)　Explain the procedure to find the root of the equation by Newton-Raphson method graphically.

(e) Construct the forward difference table for the following values of X and Y :

X	Y = f(x)
0	6
5	10
10	13
15	17
20	23
25	31

2. Attempt any *three* of the following : [15]

(a) State and explain Runge Kutta fourth order formula.

(b) Explain Picard's method of successive approximation.

(c) Show that :

$$E = 1 + \Delta \text{ and } E^{-1} = 1 - \nabla.$$

(d) Find $\dfrac{dy}{dx}$ and $\dfrac{d^2y}{dx^2}$ of the data function at $x = 3$

X	Y
1	4
2	9
3	16
4	25
5	36

(*e*) Using Langrange's interpolation formula, Find the value of y at $x = 5$

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

3. Attempt any *three* of the following : [15]

(*a*) What do you mean by Time Series ? Explain additive and multiplicative model of time series.

(*b*) Explain small sample test.

(*c*) State *five* applications of normal distribution in real life.

(*d*) The following 2 × 2 contingency table

	Smoker	Non-smoker
Literate	83	57
Illiterate	45	68

Test whether there is any relation between literacy and the smoking at 5% level of significance.

(*e*) Let

$$x \rightarrow N(3, \ 2^2),$$

Find $p[x < 5]$ and $p[2 < x < 8]$

4. Attempt any *three* of the following : [15]

(*a*) Fit a straight line for the following data :

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

(*b*) Write the Normal equations for fitting of second degree parabola.

(*c*) Fit a poisson distribution for the following data and test the goodness of fit.

No. of defects	Frequency
0	6
1	13
2	13
3	8
4	4
5	3

(*d*) Evaluate $\int_{0}^{6} \dfrac{dx}{1+x^2}$ by

(*i*) Trapezoidal Rule

(*ii*) Simpsons $\left(\dfrac{1}{3}\right)$rd Rule.

(*e*) Solve :

$$\frac{dy}{dx} = e^x - y, \ y(0) = 0$$

by Picords method.

5. Attempt any *two* of the following : [20]

(*a*) Using Eulers modificd method, find the solution of the equation :

$$\frac{dy}{dx} = x + \left|\sqrt{y}\right|$$

with initial condition $y = 1$ at $x = 0$ for the range of $0 \leq x \leq 0.4$ in steps of 0.2.

Or

Given

$$\frac{dy}{dx} = x + y$$

if $x = 0$ then $y = 1$. Find $y(0.1)$ and $y(0.2)$ correct upto 4 decimal places using Runge-Kutta second order and fourth order formula.

(*b*) Find 4-yearly contered moving averages for the following data :

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

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

(*c*) Two sample are drawn from two normal populations. From the following data test whether the two samples have same variances at 5% level of significance ?

Sample I	Sample II
60	61
65	66
71	67
74	85
76	78
82	88
85	86
87	85
—	63
—	91

Total No. of Questions—5]　　　　　[Total No. of Printed Pages—4

Seat
No.

[4966]-104

M.C.A. (Commerce Faculty) (First Semester)

EXAMINATION, 2016

OPERATING SYSTEM

(2008 PATTERN)

Time : Three Hours　　　　　**Maximum Marks : 80**

N.B. :— (i)　*All* questions are compulsory.

(ii)　Neat diagrams must be drawn whenever necessary.

1.　Attempt any *four* of the following :　　　　　[4×4=16]

(a)　What are the services supervised by kernel I/O subsystem ?

(b)　Explain paging with diagram.

(c)　List the types of non-contiguous memory allocation. Explain any *one* in detail.

(d)　What are the functions performed by device controller ?

(e)　Explain real time systems in detail.

2.　Attempt any *four* of the following :　　　　　[4×4=16]

(a)　List and explain operations on file.

(b)　What is the sequence of actions taken in response to a page fault ?

(c) Explain 'Second-Chance" page replacement algorithm with example.

(d) What is system program ? List the components of system program. Explain any *one* in detail.

(e) What is deadlock ? What are the necessary and sufficient conditions for deadlock occur ? Explain any *one* in detail.

3. Attempt any *four* of the following : [4×4=16]

(a) Give a brief description for application of I/O Interface.

(b) Explain storage structure in detail.

(c) Explain in brief direct access method of file access.

(d) Explain in brief "Tree structured directory method of file access."

(e) Consider the following page reference string :

4 3 2 1 4 3 5 4 3 2 1 5

How many page faults will occur for the following page replacement algorithm using 3 frames :

(i) LFU replacement

(ii) Optimal replacement ?

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

(a) What is swapping ? Explain swap-in and swap-out process.

(b) Write a note on co-operating processes.

(c) Explain the terms logical and physical address. How is logical address converted into physical address ?

(*d*) Explain the concept of context switch in detail with diagram.

(*e*) Consider the following set of processes with the length of CPU burst time and arrival time given in milliseconds :

Process	Burst time	Arrival time
P_1	5	1
P_2	3	0
P_3	2	2
P_4	4	3
P_5	2	13

Illustrate the execution of these processes using round robin CPU scheduling and FCFS algorithms. Also calculate wait time and turnaround time of each process and calculate average waiting time and average turnaround time for above situation and also draw the Gantt Chart. Time Quantum = 2.

5. Attempt any *four* of the following : **[4×4=16]**

(*a*) Explain locality model.

(*b*) Explain file protection concept in detail.

(*c*) Explain linked allocation method with its advantages and disadvantages.

(*d*) Explain multiple contiguous variable partition allocation method in detail.

(e) Consider the system with 5 processes P = {P₀, P₁, P₂, P₃, P₄} and four resources type {A, B, C, D}. There are three instances of type A, 14 instances of type B, 12 instances of type C and 12 instances of type D.

The allocation and maximum demand matrix are as follows :

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

Answer the following questions using banker's algorithm :

(i) Is the system in a safe state ?

(ii) If a request from process P₄ arrives for (0, 0, 4, 1) can the request be immediately granted ?

Total No. of Questions—5]   [Total No. of Printed Pages—3

Seat
No.

[4966]-105

M.C.A. (Commerce Faculty) (First Semester) EXAMINATION, 2016

106 : SOFTWARE ENGINEERING

(2008 PATTERN)

Time : Three Hours   Maximum Marks : 80

N.B. :—   (*i*)   *All* questions are compulsory.

         (*ii*)   Figures to the right indicate full marks.

       (*iii*)   Draw diagrams whenever necessary.

1.   Solve the following case study :   [16]

The railway reservation system functions as follows :

The passenger is required to fill in a reservation form giving details of his journey. The counter clerk ensures whether the place is available. If so, entires are made in the register, tickets are prepared, amount is computed and cash is accepted. A booking statement is prepared in triplicate format from the reservation register. One copy of it is retained as office copy, the other is pasted on the compartment and the third is passed on to the train conductor. Beside booking statement, cash statement is prepared at the end of each shift. Draw the following :

(*a*)   E-R Diagram   [6]

(*b*)   Context—level Diagram   [4]

(*c*)   First—level Data Flow Diagram.   [6]

2. Answer the following (any *four*) : [16]

(*a*) Define system and explain the characteristics of system.

(*b*) Explain water fall model in detail.

(*c*) Differentiate between white box testing and black box testing.

(*d*) Explain importance of software maintenance.

(*e*) Freight charges depends on whether goods are perishable or non-perishable.

For perishable goods freight charges are as follows :

(*i*) If weight is less than 100 kg. Rate is Rs. 500

(*ii*) If weight is between 100 to 500 kgs. Rs. 90 is charged for every additional 100 kgs. over initial 100 kgs.

(*iii*) If weight is over 500 kgs. Rs. 1000 is charged for every additional 500 kgs. over intial 500 kgs.

Perishable goods are charged at the rate of Rs. 100 for 100 kgs.

Draw Decision table for the above study.

3. Answer the following (any *four*) : [16]

(*a*) What is fact finding technique ? Explain any *one* in detail.

(*b*) Explain traditional approach of implementation with suitable example.

(*c*) Explain Capability Maturity Model in detail.

(*d*) Explain Reverse Engineering in detail.

(*e*) A regional transport office (RTO) is related with registration of vehicles. Mainly the vehicles are categorized as commercial and non-commercial. If the vehicle is non-commercial and its type is two wheeler then registration charges are Rs. 100 for three wheeler Rs. 150 and for four wheeler Rs. 200. For commerial type of vehicles Rs. 100 is added extra in registration charges.

Draw Decision table for the above study.

4. Answer the following (any *four*) : [16]

(a) What is data dictionary ? Explain the elements of data dictionary.

(b) Write a note on structured chart.

(c) What is feasibility study ? Explain its type in brief.

(d) Design an input screen for college admission form.

(e) Differentiate between logical DFD and Physical DFD.

5. Write short notes on (any *two*) : [16]

(a) Normalization

(b) ISO standards

(c) Structured English

(d) Reengineering

(e) 4GL.

Total No. of Questions—5]　　　　　[Total No. of Printed Pages—4

Seat
No.

[4966]-201

M.C.A. (Com. Faculty) (Second Semster) EXAMINATION, 2016
202 : RELATIONAL DATABASE MANAGEMENT SYSTEM
(2008 PATTERN)

Time : Three Hours　　　　　　　　　　**Maximum Marks : 80**

N.B. :— *(i)　All* questions are compulsroy.

(ii)　All questions carry equal marks.

(iii) Figures to the right side indicate full marks.

1. Attempt All :　　　　　　　　　　　　　　　[8×2=16]

(a)　　Diagrammatically represent 3-tier database architecture.

(b)　　Define :

(i)　Database schema

(ii)　Database instance.

(c)　　What is a constraint ? What is integrity constraint ?

(d)　　Which are different types of relationships between two entities ?

(e)　　What is time stamp ? Which are 2 types of time stamp ?

(f)　　List version of 2-phase locking protocol.

(g)　　Which are ACID properties of transactions ?

(h)　　What is recoverable schedule ?

P.T.O.

2. Attempt any *four* :   [4×4=16]

(*a*)   What are advantages of DBMS over file system ?

(*b*)   Explain following operations with example :

    (*i*)   Natural join

    (*ii*) Project.

(*c*)   Write a note on authorization

(*d*)   Explain aggregation with example.

(*e*)   What is normalization ? Give advantages and disadvantages.

3. Attempt any *four* :   [4×4=16]

(*a*)   What is transaction ? What are different states of transactions ? Explain with diagram.

(*b*)   Write a note on graph-based protocol.

(*c*)   Explain different types of storage structure.

(*d*)   Write a note on immediate database modifications.

(*e*)   How deadlock is recovered ?

4. Attempt the following :   [10+6=16]

(*a*)   Design a E-R diagram for the following scenario. Identify entities and relationships.   [10]

Many colleges started B.C.S. stream B.C.S. can take only those student who done H.S.C. pass with at least 50 with subject

Maths and Science stream. After declaration of H.S.C. class B.C.S. college sale their forms to candidate. Candidate fills the forms and submit it to college office college makes the 3-merit list. Each merit list has out of marks criteria.

(b) Attempt *all* :   [2×3=6]

   (i) What is BCNF ? Explain with example.

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

5. Attempt the following :   [10+6=16]

(a) Consider the following schema   [5×2=10]

   Teacher (<u>tno</u>, thame, college, dept)

   Etest (<u>eno</u>, testname)

   Teacher-Etest (tno, eno)

   Teacher and etest are related with many to many relationship.

   Solve the following query using SQL :

   (i) Count the number of teacher who passed 'NET Exam' of computer science

   (ii) Delete all the teacher details of 'Maths' department.

   (iii) Count the number of teachers of 'computer department'.

   Solve the following queries using relational algebra

   (i) Display teacher of 'MIT' college

   (ii) Display testname having tno = 5

(*b*)   Attempt *all* :   [2×3=6]

    (*i*)   Consider the following non-serial schedule. Is this schedule serializable to serial schedule $<T_1, T_2>$?

T_1	T_2
R(A)	
	R(A)
	A = A + N
W(A)	
R(B)	
	W(A)
B = B+N	
W(B)	

    (*ii*)   Consider the following transactions :

T_1	T_2	T_3
R(X)	R(Z)	R(X)
R(Z)	Z = Z + 10	R(Y)
X = X + Z	R(Y)	Y = Y – X
W(X)	Y = Y + Z	W(x)
	W(Z)	
	W(Y)	

Find out a schedule which is serializable to serial schedule $<T_1, T_2, T_3>$

Total No. of Questions—5]　　　　[Total No. of Printed Pages—4+2

Seat
No.

[4966]-202

M.C.A. (Commerce Faculty) (Second Semester) EXAMINATION, 2016
203 : COST ACCOUNTING AND COST CONTROL TECHNIQUES
(2008 PATTERN)

Time : Three Hours　　　　　　　　　Maximum Marks : 80

N.B. :—　(i)　*All* questions are compulsory.

　　　　　(ii)　Figures to the right indicate full marks.

1.　(a)　Define the term Cost Accounting. State the objectives and
　　　　　limitations of Cost Accounting.　　　　　　　　　　　　[8]

　　(b)　What do you mean by operating costing ? State he important
　　　　　features of operating costing.　　　　　　　　　　　　[8]

2.　Write notes on any *four* :

　　(1)　Cost unit and cost centre

　　(2)　Absorption of overheads

　　(3)　Margin of safety

　　(4)　Elements of cost

　　(5)　Limitations of standard costing.　　　　　　　　　　　[16]

3.　The following information has been obtained from the records of
　　Ashoka Limited, Pune for the year ended 31st March 2011 :

Particulars	As on 1-04-2010	As on 31-3-2011
Stock of Finished Goods	Rs. 50,000	Rs. 75,000
Stock of Raw materials	Rs. 20,000	Rs. 25,000
Stock of work-in-progress	Rs. 5,000	Rs. 7,000

P.T.O.

Additional Information :

		Amount (Rs.)
(1)	Purchases of raw material	1,30,000
(2)	Outstanding wages	3,000
(3)	Indirect material	12,000
(4)	Discount on issue of debentures	8,000
(5)	Carriage inward	15,000
(6)	Property tax on factory building	8,000
(7)	Travelling expenses of directors	8,000
(8)	Carriage onward	5,000
(9)	Defective raw material returned	5,000
(10)	Direct chargeable expenses	2,000
(11)	Factory rent	7,000
(12)	Expenses for participating in industrial exhibition	3,000
(13)	Sales	3,00,000
(14)	Office cleaning charges	2,000
(15)	Sales promotion charges	6,000
(16)	Miscellaneous office expenses	7,000
(17)	Upkeep of delivery van	1,000
(18)	Motive power	5,000
(19)	Productive wages	60,000
(20)	Postage and telegramme	3,000

From the above information, prepare a statement of cost showing the following :

(1)   Cost of raw material consumed

(2)   Prime cost

(3)   Factory cost

(4)   Cost of production

(5)   Total cost

(6)   Profit.   [16]

4.   Gharkul Builders, undertook the construction of a residential building on 1st April 2009. The contract price is Rs. 15,00,000. The following are the details of expenses incurred by the contractor during the year 2009-2010 :   [16]

Particulars	Rs.
Productive labour charges	4,05,000
Outstanding wages	7,800
Material issued from store room	4,20,000
Material purchased	81,200
Stock of material 31-3-2010	300
Material transferred to other contract	6,000
Material received from other site	1,600
Direct expenses	23,000
Works overheads	37,200

Plant installed at site on 30-9-2009   58,000

Installation charges for plant   2,000

Work certified   11,00,000

Work uncertified   16,500

Cash received upto 31/3/2010   8,80,000

Provide depreciation on plant @ 40% p.a.

You are required to prepare Contract Account.

Or

In a factory the product passes through two processes A and B. A loss of 5% is allowed in process A and 2% in process B, nothing is realised from disposal of wastes. During April 2010, 10,000 units of materials costing Rs. 6 per unit were introduced in process 'A'. The other costs are as follows :

Particulars	Process A	Process B
	Rs.	Rs.
Material	—	6,140
Labour	10,000	6,000
Overheads	6,000	4,600

The output was 9300 units from process A, 9,200 units were produced by process B, which were transferred to the finished stock.

Prepare Process A/c from the above information assuming that there was no opening stock of any type.   [16]

5. Prepare cash budget for three months ending 30th June 2011 from the following particulars : [16]

Month	Total sales	Purchases	Salary	Selling overheads
Jan.	80,000	40,000	6,000	3,800
Feb.	1,00,000	80,000	8,000	4,200
March	60,000	80,000	8,000	6,100
April	1,20,000	1,00,000	10,000	3,800
May	1,60,000	1,43,000	12,000	4,300
June	1,40,000	1,00,00	10,000	6,800

Additional Information :

(1)   Total sales include 1/4th on cash and 3/4th on credit.

(2)   30% of credit sales are on two months credit and 70% are released in the month following the sales.

(3)   Creditors for purchases are paid in the month following the purchases.

(4)   Delay in payment of salary in half month.

(5)   Selling overheads are to be paid in the same month.

(6)   Advance income tax is to be paid in April Rs. 4,000.

(7)   Cash at Bank on 1st April 2011 is estimated to be Rs. 40,000.

Or

(*a*)   From the following information you are required to calculate :

(1)   P/V ratio

(2)   BEP (sales)

(3) Profit when sales are Rs. 1,20,000

(4) Sales required to earn profit of Rs. 60,000

Particulars	Amount
Fixed cost	Rs. 40,000
Variable cost per unit	Rs. 2
Sales	Rs. 2,00,000
Selling price per unit	Rs. 10	[8]

(b) From the following particulars calculate the following material variances :

(1) Material cost variances

(2) Material usage variances

(3) Material price variances [8]

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

Total No. of Questions—5]　　　　　　　[Total No. of Printed Pages—4

Seat
No.

[4966]-203

M.C.A. (Commerce Faculty) (II Semester) EXAMINATION, 2016
204 : ACCOUNTING FOR MANAGEMENT
(2008 PATTERN)

Time : Three Hours　　　　　　　　　　　　Maximum Marks : 80

N.B. :— (*i*)　*All* questions are compulsory.
　　　　(*ii*)　*All* questions carry equal marks.
　　　　(*iii*)　Use of calculator is allowed.

1. Define the term management accounting. Give an outline of the objectives and scope of management accounting.

Or

Critically examine the various tools available to the financial analyst. What are the limitations of such tools ?

2. The following are the Balance Sheets of National Industries Limited as on 31st March, 2011 and 31st March, 2012 :

Liabilities	2010-11	2011-12	Assets	2010-11	2011-12
Paid-up Capital	3,00,000	3,40,000	Bank	45,600	48,800
Profit & Loss A/c	1,20,600	1,43,600	Debtors	9,800	16,000
Mortgage Loan	20,000	19,000	Stock	42,000	65,200
Creditors expenses	42,400	45,200	Bills Receivables	32,200	10,000
Liabilities for exp.	2,600	1,000	Investments	42,300	35,100
Provision for depreci.	25,600	34,000	Plant & Mach.	1,83,400	2,68,000
Provision for taxation	11,000	12,400	Land & Build.	1,50,000	1,40,000
			Intangible Assets	16,900	12,100
Total Rs.	5,22,200	5,95,200	Total Rs.	5,22,200	5,95,200

P.T.O.

The following transactions took place during the year :

(1) Land and building which had cost of Rs. 10,000 was sold for Rs. 25,000.

(2) Difference between the figures to investments represents amount written off in respect of worthless investments.

(3) A dividend of Rs. 25,000 was paid

(4) Old machinery which had cost of Rs. 10,000. (Accumulated depreciation thereon Rs. 8,000) was sold for Rs. 6,000)

(5) Tax paid during the year Rs. 11,600.

You are required to prepare Fund Flow Statement with Necessary Working Notes.

3. Prepare a Flexible Budget for overheads on the basis of the following data at 50% and 80% capacity :

Particulars	At 60% Capacity
Variable overheads :	
Indirect material	Rs. 6,000
Indirect labour	Rs. 18,000
Semi-variable overheads :	
Electricity (40% Fixed)	Rs. 30,000
Repairs (20% Variable)	Rs. 3,000

Fixed overheads :

Depreciation   Rs. 16,500

Insurance   Rs. 4,500

Salaries   Rs. 15,000

Estimated Direct Labour Hours   186000

Ascertain the Overhead Rates at 50%, 60% and 80% capacity.

4. (a) Describe the principal ratios which you consider significant to test the liquidity of a firm.

   (b) During a year, a manufacturing company has produced and sold three products viz. A-20,000 Units, B-14,000 Units and C-10,000 Units. The following further information is also available :

Particulars	Product A	Product B	Product C
Marginal Cost Per Unit	Rs. 20	Rs. 36	Rs. 32
Time Taken in Hours Per Unit	5	6	5
List Price Per Unit	Rs. 40	Rs. 60	Rs. 80

Total Fixed Costs Rs. 4,00,000.

The list prices of the products are subject to a uniform trade discount of 10%.

Due to shortage of labour, the available working hours for the next year are estimated to be only 1,80,000 hours.

Suggest a suitable sales mix for the next year when the potential demand is 18,000 units for A, 10,000 units for B and 12,000 units for C. Also calculate the profit for sales mix.

5. Write short notes (any *four*) :

(*a*)   Types of financial analysis

(*b*)   Functions of management accountant

(*c*)   Assumptions underlying break-even charts

(*d*)   Advantages of cash flow statement

(*e*)   Objectives of Budgetary Control

(*f*)   Budget Committee.

Total No. of Questions—5]　　　[Total No. of Printed Pages—2

Seat
No.

[4966]-204

M.C.A. (Commerce Faculty) (Second Semester) EXAMINATION, 2016
205 : NETWORKING OPERATIONS
(2008 PATTERN)

Time : Three Hours　　　　　　　　Maximum Marks : 80

N.B. :— (i) Attempt all the *five* questions.

(ii) Figures to the right indicate full marks.

1. Attempt the following (any *four*) :　　　　　　[4×4=16]

(a) Compare LAN and WAN.

(b) Explain different design issues of the layer.

(c) What is bluetooth ? Explain piconet and scatternet.

(d) Explain basic ethernet bus.

(e) Define web documents. Explain different types of web documents.

2. Write short notes on (any *four*) :　　　　　　[4×4=16]

(a) Gateways

(b) Communication subnet

(c) Token ring

(d) Components of firewall

(e) Unguided media.

3. Attempt the following (any *four*) :　　　　　　[4×4=16]

(a) Explain twisted pair cable in detail.

P.T.O.

(*b*) What is the looping problem in bridges ? How is it avoided ?

(*c*) Compare repeater and bridge.

(*d*) Explain the services provided by data link layer in ISO/OSI model.

(*e*) How do web servers work ?

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

(*a*) Explain the structure of computer network.

(*b*) Explain star topology with its advantages and disadvantages.

(*c*) Define :

(*i*) Connection oriented service

(*ii*) Peer entities

(*iii*) Protocol

(*iv*) Search engine

(*d*) List and explain bluetooth layers.

(*e*) "Repeater is a generator, not an amplifier". Comment.

5. Attempt the following (any *one*) : [1×16=16]

(*a*) (*i*) Define NIC. Explain with its functions.

(*ii*) Draw and explain the frame format of IEEE 802.11. [4]

(*iii*) Explain point-to-point and multipoint connection. [4]

(*iv*) Compare intranet and extranet. [4]

Or

(*b*) (*i*) Explain in detail TCP/IP protocol suite. [8]

(*ii*) Explain in detail different propagation methods. [8]

Total No. of Questions—**5**]　　　　[Total No. of Printed Pages—**4**

Seat
No.

[4966]-205

M.C.A. (Commerce Faculty) (Second Semester)
EXAMINATION, 2016
206 : OBJECT ORIENTED PROGRAMMING
(2008 PATTERN)

Time : Three Hours　　　　　　　　**Maximum Marks : 80**

N.B. :— (*i*) *All* questions are compulsory.

(*ii*) Figures to the right indicate full marks.

(*iii*) *All* questions carry equal marks.

(*iv*) Assume suitable data, if necessary.

1. Attempt any *four* :　　　　　　　　　　[4×4=16]

(*a*) State benefits of object oriented paradigm.

(*b*) Explain what makes java platform independent.

(*c*) Explain abstract classes and methods.

(*d*) What is major difference in java & C++ ?

(*e*) Explain copy constructor ?

2. Attempt any *four* :　　　　　　　　　　[4×4=16]

(*a*) How are constants and variables important in developing a program ? Give examples in C++ & Java.

(*b*) How is call by reference achieved in Java ?

(*c*) Write a note on : Operator overloading.

(*d*) Explain features of Java.

P.T.O.

(*e*)   How do you prevent a sub class from access to a number of a super class in Java ? Explain with example.

3.   Attempt any *four* :   [4×4=16]

(*a*)   How is multiple inheritance supported in Java ?

(*b*)   Write a note on :

   (*i*)   Static

   (*ii*)   Abstract

(*c*)   Define type casting? How it is used in C++ ?

(*d*)   Explain primitive data types in Java.

(*e*)   Explain array of objects using C++ ?

4.   Attempt any *four* :   [4×4=16]

(*a*)   Write a C++ program to accept two numbers from use and find out LCM of number.

(*b*)   Write a java program to accept 2 strings using command line arguments and concatenates these strings without using standards methods.

(*c*)   Create a class Add. Use overloading operator ++ to add two numbers.

(*d*)   Write a C++ program to compare two numbers from different classes using fried function.

(*e*)   What a menu driven program in C++ which accepts records of 5 students such as (rno, name, total marks and percentage). Display the record also display the highest marks amongst them.

5. **(A)** Trace output : (Consider there is no syntax error in given code : [2×4=8]

    (*a*)   class TDemo

```
class TDemo
{
static void Tone( ) throws Illegal AccessException
    System.outprintln("Inside Tone");
    Throw new illegel AcessException("demo");
}
    public static void main(String args[ ])
    {
        try{
            Tone( );
        }catch (Illegal Access Exception e)
        {
            System.out.println("Caught ::" + e);
        }
    }
}
```

What value is printed out, when executed ? Explain why ?

    (*b*)   class some{

```
class some{
public:
  ~some( )
  {
      cout <<" some's destructor"<<endl;
  }
};
void main( )
{
    some s;
    s.~some( );
}
```

What value is printed out, when executed ? Explain why.

(B) Attempt any *two* :   [4×2=8]

   (a) Write a java program that displays the number of non vowel alphabets in a given word. (Take input from user).

   (b) Create an abstract class shape which consist area () method. Create two classes square an rectangle. Write a java program to calculate area() of both classes.

   (c) Write a program in java to check whether the entered character is digit, alphabet or space character.

Total No. of Questions—5]　　　　　　[Total No. of Printed Pages—3

Seat
No.

[4966]-301

MCA (Commerce Faculty) (Third Semester) EXAMINATION, 2016

301 : ADVANCED OPERATING SYSTEMS

(2008 PATTERN)

Time : Three Hours　　　　　　　　**Maximum Marks : 80**

N.B. :— 　(i)　*All* questions are compulsory.

　　　　(ii)　*All* questions carry equal marks.

1. Attempt the following (any *four*) :　　　　　　[4×4=16]

　(a)　Explain message loop.

　(b)　How to obtain Device context handle ?

　(c)　What are GDI objects ? Explain with *three* examples.

　(d)　What do you mean by capturing the mouse ? Explain API function related to mouse capture.

　(e)　What are cases of reading and writing pipes ?

2. State true or false and justify your answer (any *four*) : [4×4=16]

　(a)　WinMain always calls WndProc.

　(b)　Timer message are not Asynchronous.

　(c)　Static control text cannot be changed dynamically.

　(d)　System menu cannot be modified.

　(e)　Scrollbar are predefined Window control.

3. Answer the following (any *eight*) :　　　　　　[8×2=16]

　(a)　State the fields of PAINT_STRUCT and RECT_STRUCT.

P.T.O.

(b)   What are the contents of WPARAM and LPARAM ?

(c)   Give message that helps in pointing on owner draw buttons ? How ?

(d)   Give syntax of Chroot and its use.

(e)   Write any *two* Linux/Unix commands.

(f)   List I/O parameters in U-Area.

(g)   Explain cat command with options.

(h)   Under which situation WM_PAINT message is fired ?

(i)   Define process.

(j)   What is Callback function ?

4.   Attempt any *four* :   [4×4=16]

(a)   An edit control has text displayed on it when user presses the "HOME" key on keyboard caret message to beg of text on pressing "END" key, the caret moves to the end of the text.

(b)   Write a shell script which gets executed at the moment the user logs in. It should display the message "Good Morning"/ "Good afternoon"/"Good evening" depending upon time at which user logs in.

(c)   Display caret at the center of the client area and using Up, Down, Left, Right arrow key move it accordingly.

(d)   Display Horizontal scroll bar and add keyboard interface to it.

(e)   Write a shell script to accept five digit number and calculate the sum of its digit.

5. Attempt the following (any *four*) :　　　　　　　　　　[4×4=16]

(*a*)　Explain features of Unix Operating System.

(*b*)　Why there is need to lock Inode during read algorithm ?

(*c*)　What do you mean by mounting and unmounting file system ?

(*d*)　Explain process states and transitions.

(*e*)　What are signals ? Explain.

Total No. of Questions—8] [Total No. of Printed Pages—2

Seat
No.

[4966]-302

M.C.A. (Commerce Faculty) (Third Sem.) EXAMINATION, 2016
ENTERPRISE RESOURCE PLANNING & MANAGEMENT
(2008 PATTERN)

Time : Three Hours **Maximum Marks : 70**

N.B. :— (*i*) Answer any *five* questions.

(*ii*) Neat diagrams must be drawn wherever necessary.

(*iii*) *All* questions carry equal marks.

1. What is Business Process Re-engineering ? Explain its phases.

2. Explain in detail the technologies used in data mining.

3. Write short notes :
   (*a*) Business Modelling
   (*b*) Future of ERP
   (*c*) Supply Change Management
   (*d*) Benefits of ERP

4. What is ERP Market ? Explain the role of vendors in ERP market.

5. What is data warehousing ? Briefly explain the components of Data warehousing.

6. Write short notes :

   (*a*)   QAD

   (*b*)   IDOC

   (*c*)   EDI Standards

   (*d*)   EDI Services.

7. What is EIA ? Explain *two* flavours of EIA and messaging.

8. What is EDI ? Explain the evolution and benefits of EDI.

Total No. of Questions—5]　　　　　[Total No. of Printed Pages—2

Seat
No.

[4966]-303

MCA (Commerce Faculty) (Third Semester) EXAMINATION, 2016

304 : BUSINESS STRATEGIES

(2008 PATTERN)

Time : Three Hours　　　　　　　Maximum Marks : 80

N.B. :—　(*i*)　*All* questions are compulsory.

　　　　　(*ii*)　*All* questions carry equal marks.

1.　Answer the following questions (any *four*) :　　　　[16]

　　(*a*)　Define "Strategy". Analyze the definition.

　　(*b*)　What do you mean by environment analysis ?

　　(*c*)　Explain the features of strategic decision making.

　　(*d*)　Write the essential elements of a mission statement.

　　(*e*)　Explain the process of strategic management.

2.　Answer the following questions (any *four*) :　　　　[16]

　　(*a*)　Give the importance of strategic management.

　　(*b*)　How will you identify the Strengths and Weakness of a business ?

　　(*c*)　Describe the issues involved in the formulation of strategies.

　　(*d*)　Explain the concept of Operational Strategies.

　　(*e*)　State and explain the key sources of gathering information for environmental scanning.

3. Answer the following questions (any *four*) : [16]

(a) State and explain the advantages of cost plus strategy.

(b) Explain the economic environment of business.

(c) Give the difference between Horizontal and Vertical Integration.

(d) Discuss the objectives of maketing strategy.

(e) Write a short note on competitive Environment.

4. Answer the following questions (any *two*) : [16]

(a) State the Reasons for Mergers and Acquisitions.

(b) Describe in detail the various types of strategies.

(c) Explain the components of Business Environment.

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

(a) Strategic Advantage

(b) Interrelationship between strategy formulation and implementation

(c) Strategic control

(d) Role of Strategists

(e) Advantages of Strategic planning.

Total No. of Questions—12]   [Total No. of Printed Pages—2

Seat
No.

[4966]-304

M.C.A. (Commerce Faculty) (Third Semester) EXAMINATION, 2016
305 : CYBER LAW AND ETHICS
(2008 PATTERN)

Time : Three Hours   **Maximum Marks : 80**

N.B. :— *All* questions are compulsory.

1. Attempt any *four* of the following :   [4×4=16]

   (*a*)   Explain ICMP attack in brief.

   (*b*)   Write a note on data integrity.

   (*c*)   Explain intellectual property in cyber space.

   (*d*)   Explain section under duties of subscribers.

   (*e*)   Define insurance. Give its advantages.

2. Attempt any *four* of the following :   [4×4=16]

   (*a*)   Explain RSA algorithm

   (*b*)   What are cyber contracts ? Explain.

   (*c*)   List duties of subscriber.

   (*d*)   Write down mistake in E-commerce.

   (*e*)   Explain encryption with example.

3. Attempt any *four* of the following :   [4×4=16]

   (*a*)   What is the idea behind man-in-the-middle attack.

(b) Explain with example cryptosystem for authentication.

(c) What is computer virus. Explain.

(d) Write down functions of controller.

(e) Explain bulletin board system.

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

(a) Give the rules of renewal of licence.

(b) List some modes of operation in data processing application.

(c) Write a short note on cyber crime in India.

(d) Write a short note on I.T. Act 2000.

(e) Explain Trojan horse programme.

5. Attempt any *four* of the following : [4×4=16]

(a) Explain digital signature

(b) Explain chat stalking

(c) Explain web based crimes

(d) Explain direct an indirect harassment.

(e) How cyber crimes are classified ? Explain.

Total No. of Questions—5]　　　　　　[Total No. of Printed Pages—2

Seat
No.

[4966]-305

M.C.A. (Commerce Faulty) (Third Semester) EXAMINATION, 2016
FINANCIAL AND INVESTMENT ANALYSIS
(2013 PATTERN)

Time : Three Hours　　　　　　　**Maximum Marks : 80**

N.B. :— *All* questions are compulsory and carry equal marks.

1. What is 'Investment Process' ? Explain various stages in Investment Process.

Or

Discuss and critically examine investments made by the investors in the financial markets in India.

2. What is 'Primary and Secondary market' ? Explain the important regulations relating to the Secondary Market.

Or

What do you understand by 'Derivative Trading' ? Explain various categories of Derivative Trading.

3. What is 'Economic Analysis' and 'Industry Analysis' ? Explain various factors in Industry Analysis.

Or

Describe meaning and importance of 'Technical Analysis'. Explain in brief tools of 'Technical Analysis'.

P.T.O.

4. What is 'Diversification' ? Explain its importance and limitations as a technique of Risk Reduction.

Or

What do you understand by the Evaluation of Portfolio Performance ? Explain various methods of such Evaluation.

5. Write detailed notes on any *two* of the following :

(*a*)   Market Indicators

(*b*)   Services of Intermediaries

(*c*)   Stock selection and market timing

(*d*)   OTCEI.

Seat No.

[4966]-401

M.C.A. (Commerce Faculty) (Fourth Semester) EXAMINATION, 2016
401 : ADVANCED DATABASE MANAGEMENT SYSTEM
(2008 PATTERN)

Time : Three Hours Maximum Marks : 80

***N.B.* :—** (*i*) *All* questions are compulsory.

(*ii*) Figures to the right side indicate full marks.

(*iii*) *All* questions carry equal marks.

1. Write notes on (any *four*) : [4×4=16]

(*a*) Grid files

(*b*) Parallel database system architecture

(*c*) Path expression

(*d*) Object oriented data model

(*e*) CRM.

2. Attempt any *four* : [4×4=16]

(*a*) What is I/O parallelism ? Explain interquery and intraquery parallelism.

(*b*) Write a note on spatial queries.

(*c*) What is thick and thin clients. Give disadvantages of thick-clients over thin clients.

(*d*) Write a note on data mart.

(*e*) What is raking document similarities.

3. Attempt any *four* :   [4×4=16]

   (*a*)   Write a note on XML.

   (*b*)   Explain uses of signature files.

   (*c*)   Write a note on vertical segmentation.

   (*d*)   What are responsibilities of transaction manager ?

   (*e*)   Write a note on multimedia databases.

4. Attempt any *four* :   [4×4=16]

   (*a*)   Define :

           (*i*)   Cache-concurrency problem

           (*ii*)   Spatial data

           (*iii*) Point data

           (*iv*)   Local transaction.

   (*b*)   Differentiate between centralized primary copy and fully
           distributed system.

   (*c*)   State benefits of DSS.

   (*d*)   What are similarities between OODBMS and ORDBMS.

   (*e*)   Explain :

           (*i*)   Fragmentation transparency

           (*ii*)   Replication transparency.

5. Attempt any *four* :   [4×4=16]

   (*a*)   Explain intraoperation parallelism

   (*b*)   Write a note on OLTP.

(*c*)   Explain extended E-R model

(*d*)   Consider the following schema

Emp (eno, ename, title)

consider given predicates

P1 : Title = "system Engineer"

P2 : Title = "system Engineer"

Divide the given relation using horizontal fragmentation.

(*e*)   Perform vertical fragmentation of the project relation given below :

Project (pno, Pname, budget, Location, duration) according to the following criteria :

(*i*)   Site A requires information about pno, pname, budget

(*ii*)   Site B requires information about pno, location duration.

Total No. of Questions—5]   [Total No. of Printed Pages—3

Seat
No.

[4966]-402

M.C.A. (Com. Faculty) (Fourth Semester) EXAMINATION, 2016
402 : DATA CENTRE TECHNOLOGY
(2008 PATTERN)

Time : Three Hours   Maximum Marks : 80
N.B. :—   (i)   *All* questions are compulsory.
         (ii)   Figures to the right indicate full marks.
         (iii) Give illustrations wherever necessary.

1.   Answer the following (any *four*) :   [4×4=16]
     (1)   Write a short note on TPC Benchmark.
     (2)   Explain briefly the best practices that one must follow to ease configuration and maintenance of network infrastructure.
     (3)   Write a short notes on :
           (a)   In-band monitoring
           (b)   Out-band monitoring
     (4)   What do you understand by Network Operations Centre (NOC)?
     (5)   Explain briefly the following cluster components :
           (a)   Server
           (b)   Shared disk.

2.   Answer the following (any *four*) :   [4×4=16]
     (1)   Write a note on ISP WAN LINKS.
     (2)   Explain briefly Power Distribution Units (PDU's).
     (3)   Describe Commercial Cluster Management Software.

(4) Explain briefly the internet access and its components.

(5) Write a short note on SPEC Benchmark.

3. Answer the following (any *four*) : [4×4=16]

(1) Kareena Designer Dresses Company has several off-line stores around the state. The owners have decided to establish an on-line presence to be able to allow anyone in the country to order dresses. They have acquired services from a software development firm to place their catalog online. They have rented a building in the state of India. Study the above case study and give the proper requirements and solution for the above.

(2) Write a short note on power conditioning.

(3) Explain cold-liquid air-conditioning system.

(4) Explain briefly physical and logical security for data centre.

(5) Explain the characteristics of an outstanding design for data centre.

4. Answer the following (any *four*) : [4×4=16]

(1) Define server administration. State best practices for system administration.

(2) "The data centre must also provide the required power a well controlled environment (with regard to temperature and relative humidity) and network connectivity to other devices within and outside the data centre." Comment.

(3) State the objectives of HVAC systems.

(4) Explain the term load balancing and explain its advantages.

(5) Explain the software and hardware requirement for the cluster implementation.

5. Answer the following (any *four*) : [4×4=16]

    (1)   Explain the guidelines for planning a data centre.

    (2)   What is cluster ? Explain its types.

    (3)   Write a short note on many to one failover model.

    (4)   Explain the phases for capacity planning.

    (5)   Define benchmark. State the aspects of system performance.

Total No. of Questions—5]   [Total No. of Printed Pages—2

Seat
No.   **[4966]-403**

M.C.A. (Com. Faculty) (Fourth Semester) EXAMINATION, 2016
403 : WEB ENABLING SYSTEM AND BUSINESS APPLICATIONS
(2008 PATTERN)

Time : Three Hours   Maximum Marks : 80

N.B. :— (i) *All* questions are compulsory.

(ii) Figures to the right indicate full marks.

(iii) *All* questions carry equal marks.

(iv) Assume suitable data if necessary.

1. Attempt any *four* :   [4×4=16]

    (a) Explain various models used in e-business application design.

    (b) What are the different J2EE technologies used in web designing ?

    (c) Write a note on Bean.

    (d) Give comparative explanation of HTML and XML.

    (e) Explain custom tags.

2. Attempt any *four* :   [4×4=16]

    (a) List steps for creating XML document.

    (b) Write steps for developing web-based application using Servlet.

    (c) What is Bean ? What are the advantages of Bean ?

    (d) Explain design pattern.

    (e) Why test monitors are important in developing any system ?

3. Attempt any *four* :   [4×4=16]

   (*a*) Explain role of JSP in accessing java bean.

   (*b*) Explain Mediator Pattern. How is it used in security issues ?

   (*c*) Define server. Explain different server technologies.

   (*d*) Explain importance of Model View Controller (MVC) architecture.

   (*e*) Explain various tags used in JSP.

4. Attempt any *four* :   [4×4=16]

   (*a*) Write a note on JSP life cycle.

   (*b*) Explain client server technology.

   (*c*) What is E-business ? Explain types of E-business.

   (*d*) How XML acts as business objects transporter between applications ?

   (*e*) Explain J2EE Multitier Architecture.

5. Attempt any *four* :   [4×4=16]

   (*a*) Create a JSP page which accepts user name and greet according to time.

   (*b*) Write a JDBC program to update doctor name of cardiac department from "Dr. Ghosh" to "Dr. Kumar".

   (*c*) Create a XML file that stores information about five well-known social organization.

   (*d*) Write a program using servelet to display the available cookie information.

   (*e*) Write a program in java to display servlet information.

Total No. of Questions—**5**]

[Total No. of Printed Pages—**2**

Seat No.

[4966]-404

M.C.A. (Commerce Faulty) (Fourth Semester) EXAMINATION, 2016
CLIENT SERVER TECHNOLOGY
(2008 PATTERN)

Time : Three Hours   **Maximum Marks : 80**

N.B. :— (*i*) *All* questions are compuslory.

(*ii*) *All* questions carry equal marks.

(*iii*) Draw suitable diagram, if necessary.

1. Attempt the following (any *four*) :   [4×4=16]

   (1) Write a short note on rapid prototype

   (2) Explain difference between client-side scripting and server side scripting.

   (3) Explain any *two* string object methods with example.

   (4) Define Javascript ? What can Javascript do ?

   (5) What a short note on client/server model ?

2. Answer the following (any *four*) :   [4×4=16]

   (1) Explain onload and onunload event with example.

   (2) Write a short note on error handling in ASP.

   (3) Explain HTTP request and HTTP response.

   (4) Write a short note on transaction server.

   (5) What is peer-to-peer communication ?

3. Answer the following (any *four*) : [4×4=16]

(1) Write a Javascript to print prime numbers between 1 to 50.

(2) Write a Javascript to calculate the sum of digit of given number.

(3) Write an ASP script to display the following output :

```
      *
    *   *
  *   *   *
*   *   *   *
```

(4) Write an ASP program to insert data in student (studno, studname, age) table. Display the record in student table.

(5) Write a Javascript to print reverse of given number.

4. Answer the following (any *four*) : [4×4=16]

(1) Explain the advantages of WAN.

(2) Explain client/server for small shops and department.

(3) Write a short note on DOM object.

(4) What is session in ASP ? When does a session start and end ?

(5) Explain cookies in ASP with example.

5. Answer the following (any *four*) : [4×4=16]

(1) Write a short note on exception handling in ASP.

(2) Explain client building block with example.

(3) Explain fat client and fat server with example.

(4) Write a short note on many-to-many message via queues.

(5) Explain cursor types in recordset.

Total No. of Questions—5] [Total No. of Printed Pages—2

Seat
No.

[4966]-405

M.C.A. (Commerce Faculty) (Fourth Semester) EXAMINATION, 2016
KNOWLEDGE MANAGEMENT FOR BUSINESS
(2008 PATTERN)

Time : Three Hours Maximum Marks : 80

N.B. :— (*i*) *All* questions are compuslory.

(*ii*) *All* questions carry equal marks.

(*iii*) Draw suitable diagram if necessary.

1. Attempt any *four* of the following : [4×4=16]

 (1) Define EDM and relate it to knowledge management.

 (2) Describe the problems and limitation of ES.

 (3) Explain the purpose of using multiple experts for knowledge acquisition.

 (4) Explain the theory of certainty.

 (5) Explain the future of expert system development process.

2. Attempt any *four* of the following : [4×4=16]

 (1) Describe the production rule for knowledge representation with example.

 (2) Define artificial intelligence and give its characteristics.

 (3) List and explain the human resources used in knowledge management.

P.T.O.

(4) Explain the methods of knowledge acquisition.

(5) What is case ? Explain CBR process.

3. Write short notes on (any *four*) :   [4×4=16]

   (1) Rapid prototying

   (2) OAV triplet

   (3) Interview

   (4) Model based reasoning

   (5) Frames

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

   (1) Describe knowledge management activities.

   (2) Write a note on organizational learning.

   (3) Explain probability and related approaches in details.

   (4) Explain the activities performed in inference engine.

   (5) Describe the four scenarios of multiple experts.

5. Attempt any *two* of the following :   [2×8=16]

   (1) Explain the phases of ES development life cycle.

   (2) Explain backward chaining with example.

   (3) Define data, information knowledge and describe the KMS cycle.

Total No. of Questions—5]   [Total No. of Printed Pages—2

Seat
No.

[4966]-501

M.C.A. (Commerce Faculty) (Semester V) EXAMINATION, 2016
CONTENT MANAGEMENT SYSTEM
(2008 PATTERN)

Time : Three Hours   Maximum Marks : 80

N.B. :—   (i)   *All* questions are compulsory.

(ii)   Draw the diagrams and screenshots wherever necessary.

1.   Attempt the following (any *four*)   [4×4=16]

(a)   What is 'conversion'? Explain.

(b)   Which activities are involved while organizing information into content ?

(c)   What is moodle ? What are the principles of moodle ?

(d)   What is data ? Explain content is not data.

(e)   What is web CMS ? Explain.

2.   Attempt the following (any *four*)   [4×4=16]

(a)   What is publishing system ? Explain other publications of publishing system.

(b)   Explain how to gauge the complexity by the amount of change.

(c)   Explain Content is information plus data.

(d)   What is structure ? Explain Structure is important.

(e)   Explain Dynamic website with diagram and also explain *two* qualities of CMS.

P.T.O.

3. Attempt the following (any *four*) [4×4=16]

(*a*) Explain any *eight* Teaching Don'ts.

(*b*) Explain full CMS with diagram.

(*c*) Explain administration system.

(*d*) How to gauge complexity by amount of content that you have ?

(*e*) What is formatting by scope ?

4. Attempt the following (any *four*) [4×4=16]

(*a*) Explain CM is distributing business value.

(*b*) What is functionality ? What are the characteristics of functionality ?

(*c*) What are the rules for creating context.

(*d*) Explain moodle in Education and Training.

(*e*) What is workflow system ? Explain.

5. Write the steps for the following (any *four*) [4×4=16]

(*a*) How to set page permissions in Joomla.

(*b*) Create a website for Toys shop and Edit the prices for it in Joomla.

(*c*) Create website for wrist watches and insert the images in Joomla.

(*d*) Create a website for mobile delete the article for any old model of mobile in Joomla.

(*e*) Create a website for your college courses and add a new article having subjects of MCA (Commerce) in Joomla.

Total No. of Questions—5]   [Total No. of Printed Pages—4

Seat
No.

[4966]-502

M.C.A. (Commerce Faculty) (V Semester)
EXAMINATION, 2016
502 : DISTRIBUTED DATABASE APPLICATION
(2008 PATTERN)

Time : Three Hours   **Maximum Marks : 80**

N.B. :— (*i*)   *All* questions are compulsory.

(*ii*) Figures to the right indicate full marks.

(*iii*) Draw the neat diagrams if necessary.

1. Write notes on (any *four*) :   [4×4=16]
    (*a*) Standardization
    (*b*) Time in databases
    (*c*) TP-Monitor Components.
    (*d*) Primary Horizontal Fragmentation.
    (*e*) Properties of transactions.

2. Attempt any *four* :   [4×4=16]
    (*a*) What are the rules that define the result of applying the operations of relational algebra to qualified relations.
    (*b*) Define query optimization. Explain selection of query processing strategy.
    (*c*) What are the categories of transformation according to operators. Define Equivalence transformation.
    (*d*) Explain distributed Deadlock Prevention.
    (*e*) What are catalogs in Distributed Databases ? Explain contents of catalogs.

3. Attempt any *four* :   [4×4=16]

    (*a*)   Define :

        (*i*)   Raster data

        (*ii*) Vector data

        (*iii*) Multimedia data

        (*iv*) Temporal data

    (*b*)   Explain :

        (*i*)   Tuning of bulk loads and update

        (*ii*) Tunable parameters.

    (*c*)   What are the long duration transactions ? Explain implementation issues and concurrency control in long duration transaction.

    (*d*)   Write a note on vertical fragmentation.

    (*e*)   Explain concept of canonical expression of fragment query.

4. Attmpt any *four* :   [4×4=16]

    (*a*)   Explain different types of spatial queries.

    (*b*)   Explain optimization Graph Model.

    (*c*)   Explain clasification of failures in centralized database.

    (*d*)   What is conservative Timstamp method.

    (*e*)   Explain Authorization and protection in distributed database.

5. Attempt any *four* :   [4×4=16]

    (*a*)   Consider the following schema :

        Car (carno, carmodel, color, price)

        Consider the given predicates :

        P_1 : 6 carno < 5

        P_2 : 6 carno $\geq$ 5 And 6 Caano $\leq$ 10

        P_3 : 6 carno > 10

        Do Horizontal fragmentation on car relation.

(b) Consider the following schema :

Doctor (dno, dname, city)

Hospital (hno, hname, hcity)

Doctor-Hospital (dno, hno)

Convert the following query into optimized operator tree.

Select dname, hcity

From Doctor, Hospital Docto C - Hospital

Where Hospital .hno = Doctor-Hospital.hno

and Doctor .dno = Doctor-Hospital. dno

and   city = "Mumbai"

and   hname = " Apollo"

(c) Consider the following schema :

Employee (empno, empname, city, deptname)

Employee relation is divided into 3 fragments as :

Employee1 = SL city ="Pune"

Employee2 = SL city = "Mumbai"

Empoyee3 = SL city = "Delhi"

Convert the given query into global operator tree and reduced operator tree.

Select empno, empname from Employee

Where city = "Delhi"

(d) Consider the given scenario where there are 3 sites in the network. Transactions T_1 and T_2 are executing at site1. Transactions T_3 and T_4 are executing at site 2 Transactions T_5 and T_6 are executing at site3. Transaction T_1 is waiting for T_2. Transaction T_3 is waiting for T_4 and transaction T_5 is waiting for T_6. Draw the local and global wait-for-graph.
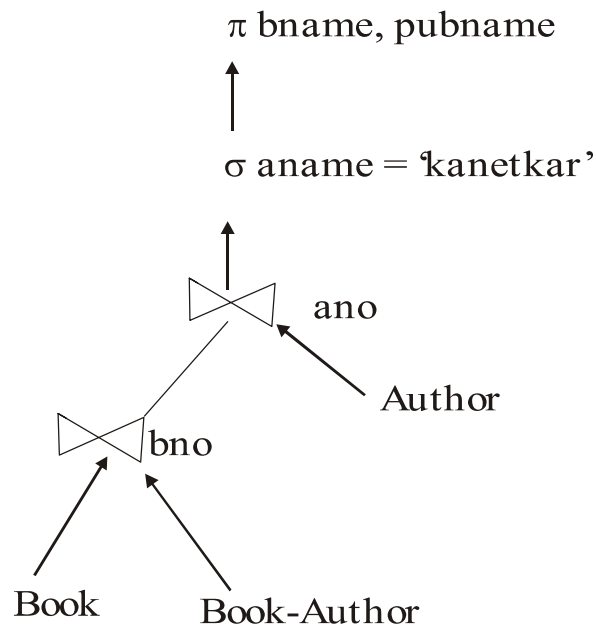
(e) Consider the following schema :

Book (bno, bname, pubname)

Author (ano, aname)

Book-Author (bno, ano)

Convert the given operator tree into optimized Operator tree.

π bname, pubname

σ aname = 'kanetkar'

⋈ ano

Author

⋈ bno

Book   Book-Author

Total No. of Questions—**5**] [Total No. of Printed Pages—**2**

Seat
No.

[4966]-503

MCA (Commerce Faculty) (Semester -V) EXAMINATION, 2016

E-COMMERCE PRACTICES AND TECHNOLOGIES

(2008 PATTERN)

Time : Three Hours **Maximum Marks : 80**

N.B. :— (*i*) *All* questions are compulsory.

(*ii*) *All* questions carry equal marks.

1. Attempt any *four* of the following : [4×4=16]

(*a*) Explain C_2C model of e-commerce.

(*b*) What is e-commerce ? Why is there need to study e-commerce ?

(*c*) Define personalization & explain need of personalization ?

(*d*) Define action and dynamic pricing. Explain various forms of dynamic pricing.

(*e*) Explain hacking in detail.

2. Attempt any *four* of the following : [4×4=16]

(*a*) Explain EBPP model in detail.

(*b*) Write notes on :

(*i*) Deigital wallet

(*ii*) Digital cash.

(*c*) Write notes on :

    (*i*)   Online catalog

    (*ii*)   Shopping cart

(*d*) Explain advantages and disadvantages of portals.

(*e*) Explain horizontal and vertical scaling with advantages.

3. Attempt any *four* of the following :   [4×4=16]

(*a*) Explain how analysis and design of e-commerce site is to be done.

(*b*) Explain features of e-commerce in detail.

(*c*) Explain online credit card transaction frauds in detail.

(*d*) Write a note on spoofing and phishing.

(*e*) Explain use of digital envelope in e-commerce.

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

(*a*) Write a note on Denial of service.

(*b*) Explain digital checking payment systems.

(*c*) Write notes on :

    (*i*)   e-distributor

    (*ii*)   M-Commerce

(*d*) List and explain benefits of auction.

(*e*) List the advantages of encryption solutions.

5. Attempt any *two* of the following :   [2×8=16]

(*a*) Why are cellphone networks threat to Paypal's future growth ?

(*b*) Explain P_2P file sharing networks.

(*c*) Discuss 'Paypal payment service.'

Total No. of Questions—5]

[Total No. of Printed Pages—3

Seat
No.

[4966]-504

**M.C.A. (COMMERCE FACULTY) (SEMESTER V)
EXAMINATION, 2016
DATA WAREHOUSING AND DATA MINING
(2008 PATTERN)**

Time : Three Hours   **Maximum Marks : 80**

N.B. :— (*i*)   *All* questions are compulsory.

(*ii*)   Figures to the right indicate full marks.

(*iii*)   Neat diagram must be drawn wherever necessary.

1. Attempt any *four* of the following.   [4×4=16]

(*a*)   Difference between data warehouse & data mart.

(*b*)   What is integration in data preprocessing ? Explain its techniques.

(*c*)   Explain backup method in data warehouse.

(*d*)   Explain the task of warehouse manager in data warehouse architecture. Draw an architecture of warehouse manager.

(*e*)   What are the components of Business Intelligence ?

2. Attempt any *four* of the following :   [4×4=16]

(*a*)   List the data mining issues. Explain any **5** of them.

(*b*)   What is Decision tree ? Write an algorithm of implementing decision tree.

(*c*)   How to clean-up data before storing in data warehouse ? Explain its technique.

(*d*)   Difference between OLAP & OLTP.

(*e*)   What is spatial mining ? Explain spatial data mining structure .

P.T.O.

3. Attempt any *two* of the following :　　　　　　　　[2×8=16]

(*a*) Difference between classification and clustering.

(*b*) What are the **3** techniques used in decision tree ? Explain any *one* of them.

(*c*) Solve the example of single dimensional Boolean association rule mining.

Find out appropriate support and confidence of the following items :

Tid	Items
01	M, A, K, E
02	C, A, K, E
03	M, I, L, K
04	C, H, O, C, O
05	B, R, E, A, D
06	J, A, M

4. Attempt any *two* of the following :　　　　　　　　[2×8=16]

(*a*) Solve the example using Baysian classification.

The following attributes are color, type, origin and the subject stolen can be either yes or no.

No.	Color	Type	Origin	Stolen
1	Red	Sports	Domestic	N
2	Red	Sports	Domestic	Y
3	Red	Sports	Domestic	Y
4	Yellow	Sports	Domestic	Y
5	Yellow	Sports	Imported	Y
6	Yellow	SUV	Imported	N
7	Yellow	SUV	Imported	N
8	Yellow	SUV	Domestic	N
9	Red	SUV	Imported	Y
10	Red	Sports	Domestic	N

Classify new attribute that 'Red SUV Imported' will comes in which class either Yes or No.

(b) Write a note on testing of data warehouse.

(c) Explain snowflake schema with suitable example and diagram.

5. Write short notes on (any *four*) :   [4×4=16]

(a) Prediction

(b) Metadata

(c) Data mining Language

(d) Time series Analysis

(e) Outlier Analysis.

Total No. of Questions—5]   [Total No. of Printed Pages—7

Seat
No.

[4966]-505

M.C.A. (Commerce Faculty) (SEMESTER V) EXAMINATION, 2016
506 : OPERATIONS RESEARCH
(2008 PATTERN)

Time : Three Hours   **Maximum Marks : 80**

N.B. :— (*i*) All questions are compulsory.

(*ii*) Figures to the right indicate full marks.

(*iii*) Use of statistical tables and calculator is allowed.

(*iv*) Symbols have their usual meanings.

1. Attempt any *four* of the following :   [16]

   (*a*) Discuss applications of OR ?

   (*b*) What is unbalance TP ? How will you balance it ?

   (*c*) Solve the following game using dominance rule :

$$\text{Player A} \quad \begin{array}{c} \text{Player B} \\ \begin{bmatrix} 0 & -2 & 7 \\ 2 & 5 & 6 \\ 3 & 3 & 8 \end{bmatrix} \end{array}$$

   (*d*) Use graphical method to solve the following L.P.P. :

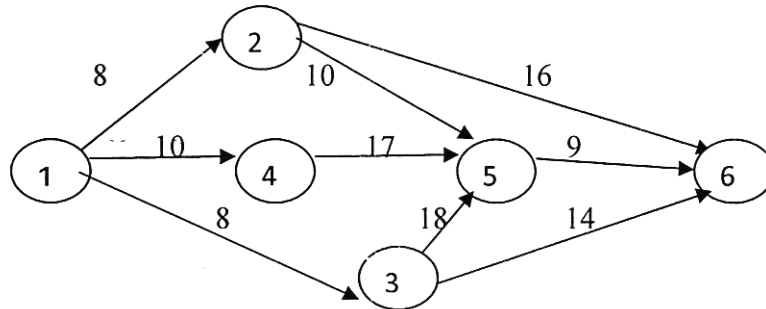   Maximize Z = 7X + 5Y

   Subject to the constraints

   X + 2Y ≤ 6

   4X + 3Y ≤ 12

   X, Y ≥ 0

P.T.O.

(*e*) For the following network, find all possible paths. Also identify the critical path.

(*f*) Obtain initial basic feasible solution using North-West corner method for the following transportation problem.

Markets→ Sources↓	D_1	D_2	D_3	D_4	Supply
O_1	1	2	1	4	30
O_2	4	5	2	9	50
O_3	20	40	30	10	20
Demand	20	40	30	10	100

Also find the corresponding transportation cost.

2. Attempt any *four* of the following : [16]
   (*a*) Explain the following with reference to L.P.P. :
   (*i*) Entering Variable
   (*ii*) Leaving Variable
   (*iii*) Surplus Variable.
   (*b*) Discuss the simplex method where it indicate existence of :
   (*i*) Multiple optimal solution
   (*ii*) Unbounded solution.

(c)   Write the dual problem of the following L.P.P. :

   Minimize $Z = 7X_1 + 3X_2 + 8X_3$

   Subjected to constraints :

   $8X_1 + 2X_2 + X_3 \geq 3$

   $3X_1 + 6X_2 + 4X_3 \geq 4$

   $4X_1 + X_2 + 5X_3 \geq 1$

   $X_1 + 5X_2 + 2X_3 \geq 7$

   $X_1, X_2, X_3 \geq 0$

(d)   Solve the following minimization assignment problem of assigning 4 programmer to 4 application programs, where estimated times in minutes required by them to develop programs is given :

Programmers→ Programs↓	I	II	III	IV
A	10	12	11	16
B	8	6	5	7
C	11	10	8	12
D	7	7	6	9

(e)   On a stud farm, horses are fed with two types of foods, food X and food Y, food X contains 36 units of nutrient A, 3 units of nutrient B and 20 units of nutrient C. Food Y contains 6, 12 and 10 units of nutrient A, B and C respectively. A horse requires a minimum of 108, 36 and 100 units of nutrients A, B and C respectively to keep itself alert and healthy. Food X costs Rs. 20 per unit while food Y costs Rs. 40 per unit. Formulate the linear programming problem to minimize the total cost for keeping the horses alert and healthy.

(f)　Obtain initial basic feasible solution using Least cost method for the following transportation problem :

Markets→ Sources↓	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	500

Also find the corresponding transportation cost.

3. Attempt any *four* the following :　　　　　　　　　　　[16]

(a)　The following table gives the activities in a project and other relevant information :

Activity	1-2	1-3	1-4	2-5	2-6	3-5	3-6	4-5	5-6
Duration	8	8	10	10	16	18	14	17	9

Find earliest start, earliest finish, latest start, latest finish times.

(b)　Consider the following game :

Player B

Player A $\begin{bmatrix} 1 & 3 & 2 & 7 & 4 \\ 3 & 4 & 1 & 5 & 6 \\ 6 & 5 & 7 & 6 & 5 \\ 2 & 0 & 6 & 3 & 1 \end{bmatrix}$

Obtain saddle point. Also state optimal strategy for player A and player B.

(c) Show that the following Linear Programming Problem has an unbounded solution :

$$\text{Max } Z = 5x_1 + 6x_2 + x_3$$

Subject to

$$9X_1 + 3X_2 - 2X_3 \leq 5$$
$$4X_1 + 2X_2 - X_3 \leq 2$$
$$X_1 - 4X_2 - X_3 \leq 3$$
$$X_1, X_2, X_3 \geq 0$$

(d) Explain advantages of dual simplex method.

(e) Explain graphical method to solve a game with suitable illustration.

(f) State assumptions of goal programming

4. Attempt any *two* of the following : [16]

(a) What do you understand by sensitivity analysis ? Explain how it is carried out ?

(b) Obtain initial basic feasible solution using Vogel's Approximation method for the following transportation problem :

Markets→ Sources↓	D_1	D_2	D_3	Supply
O_1	40	70	90	300
O_2	12	80	30	400
O_3	60	90	45	200
Demand	300	300	300	900

Also find the corresponding transportation cost.

(c) Test whether the solution given in the following transportation matrix is optimal or not ? Find alternate optimal solution if exists. Also find corresponding transportation cost.

*	D_1		D_2		D_3		D_4	
O_1	1	⑳	2		1	⑩	4	
O_2	3		3	⑳	2	⑳	1	⑩
O_3	4		2	⑳	5		9	

5. Attempt any *two* of the following : [16]

   (a) (i)   Define float. Explain different types of it.

       (ii) Explain Multi Objective Optimization.

   (b) Given below is the information about a project regarding different activities. All time estimates are in days :

Activity	1-2	1-3	1-4	2-5	3-5	4-6	5-6
t_0 :	5	1	2	3	1	2	1
t_m :	6	1	4	6	1	2	4
t_p :	7	2	12	15	1	8	7

   (i) Determine expected time estimate and variance for each activity.

   (ii) Given the total estimated completion time as 17 days with SD 3.14 days. What is the probability that the project will be completed within 12 days ?

   (c) Maximize $Z = 35X_1 + 50X_2$

       Subject to : $4X_1 + 6X_2 \leq 120$

                     $X_1 + X_2 \leq 20$

                     $2X_1 + 3X_2 \leq 40$

The optimal solution for the following L.P.P. with slack variables s_1, s_2 and s_3 is as given below :

B.V.	Cost	c_j Value	35 X_1	-50 X_2	0 s_1	0 s_2	0 s_3
s_1	0	40	0	0	1	0	-2
X_1	35	20	1	0	0	3	-1
X_2	50	0	0	1	0	-2	1
Z =	750	Zj-cj	0	0	0	5	15

If the RHS of the constraints are changed from 120,20,40 to 75,75 and 50 respectively, find the new optimal solution.