Total No. of Questions : 7]

SEAT No. :

P3908

[Total No. of Pages : 2

[5075]-101
M.C.A. (Management Faculty) (Semester - I)
IT - 11 : Computer Organization
(2012/2013 Pattern)

Time : 3 Hours] *[Max. Marks : 70*

Instructions to students :

1) ***Question 1 and 7 are compulsory.***
2) ***Solve any four questions from remaining.***
3) ***Draw neat diagrams whenever necessary.***

Q1) a) Explain dual core processor architecture with neat diagram **[10]**

b) Write a brief note on Interrupts **[5]**

Q2) Convert the following **[2 × 5 = 10]**

a) $(11001)_2 = (?)_{10}$

b) $(4706)_8 = (?)_{10}$

c) $(IAC)_{16} = (?)_{10}$

d) $(42)_{10} = (?)_2$

e) $(127.54)_8 = (?)_{10}$

Q3) What do you mean by counters? Explain one synchronous and one asynchronous counter. **[2 + 8 = 10]**

Q4) Define cache memory. Elaborate memory hierarchy with neat diagram **[2 + 8 = 10]**

Q5) Explain arithmetic pipelining with time space diagram with appropriate example **[10]**

Q6) a) Define RISC and CISC **[5]**

b) Explain full adder with neat diagram **[5]**

Q7) Write short notes (any three) **[3 × 5 = 15]**

a) Hard wired and microprogram control
b) Duality theorem
c) CPU registers
d) Flipflop

Total No. of Questions : 8]

P3909

SEAT No. :

[Total No. of Pages : 3

[5075]-102
M.C.A. (Management Faculty) (Semester - I)
IT - 12 : "C" Programming
(2012/2013 Pattern)

Time : 3 Hours] *[Max. Marks : 70*

Instructions to the candidates :

1) ***Question 1 is compulsory.***
2) ***Attempt any 6 from remaining.***

Q1) Find and explain output of following (any four) **[10]**

a)
```
# include < stdio.h>
    int main ()
    {
    int x, y, z;
    x = y = z = 1;
    z = ++x !! ++y && ++z;
    printf ("x = %d y = %d z = %d\n", x,y,z);
    return 0;
    }
```

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

c)
```
#include <stdio.h>
# define MAN (x,y) ((x)>(y))? (x):(y);
int main ()
{
int i = 0, j, k;
j = 5;
k = 0;
k = MAN (++i, j++);
printf ("%d  %d %d\n", i,j,k;
return 0;
}
```

d)
```
#include <stdio.h>
int main ()
{
char *p;
p = “hello”;
printf (“%s\n”, * & *& p);
return 0;
}
```

e)
```
# include <stdio.h>
int main ()
{
printf (5+ “ fascimile\n”);
return 0;
}
```

Q2) a) Write a recursive function to find GCD of given numbers. **[5]**

b) Write a program to display the total sum & row-wise and column-wise sum of n×n matrix. **[5]**

Q3) Write a program to accept 5 strings from user and display all strings in descending order. **[10]**

Q4) Write a program to strore the information of 100 bank account holders for their account no, name and balance amount. Also display the account no and name of all account holders who has balance less than Rs.500 **[10]**

Q5) Write a C program to append the contents of one file into another file. Use command line argument for accepting the two file names. **[10]**

Q6) a) Write a program to demonstrate fill color in circle using graphics. **[5]**

b) Write a program to display the following pattern for n = 4. **[5]**

```
        A
      b   c
    D   E   F
  g   h   i   j
```

Q7) a) Write a program to insert a given element in an array at a given positon. **[5]**

b) Write a program to accept a line of text & a word & display the number of occurences of that word in the text. **[5]**

Q8) Write short notes on **[10]**

a) Dynamic and static memory allocation in C

b) Storage class

Total No. of Questions : 7]

P3910

SEAT No. :

[Total No. of Pages : 2

[5075]-103
M.C.A. (Management) (Semester - I)
IT - 13 : SOFTWARE ENGINEERING
(2012/2013 Pattern)

Time : 3 Hours] *[Max. Marks : 70*

Instructions to candidates :

1) ***Question 1 & Q.7 are compulsory.***
2) ***Attempt any three from Q.2 to Q.6.***
3) ***Draw neat diagram wherever necessary.***

Q1) Solve the following case :

Management of Apollo Hospital propose to computerise patient registration & billing system, visiting doctor visit the hospital as per their schedule declared. Patients takes appointment as per doctor's schedule. Doctors treat patient patients are advised for medicines tests etc. The doctors are paid on monthly basis against charge slips submitted. A detailed register is maintained for patients admitted in Hospital room charges & laboratory charges are recorded in the register against each patient. At the time of discharge patient is given the bill showing the above details. Patients can a rail facilities & services offered by the hospital patients are charged for the same patients makes payment of bill by cash, credit card debit card. Receipt is given to the patients as per paymet.

a) Draw context level & Ist level DFD **[10]**

b) Prepare SRS (Only cover scope, objectives functional & non functional requirements & system specifications for above case. **[10]**

Q2) Design the data entry screen along with all ralidation for service engineer's daily reporting status. **[10]**

Q3) Explain fact finding techniques in detail **[10]**

Q4) Explain maintenance & the methods of estimating maintenance cost. **[10]**

Q5) Explain various decision analysis tools **[10]**

P.T.O.

Q6) Explain objectives of input design & types of output in detail. **[10]**

Q7) Write notes on: (attempt any four) **[20]**

a) RAD
b) Role of system analyst
c) Advantages & disadvantages of CASE tool
d) Documentation
e) Legacy systems
f) Structured English
g) Agile process

Total No. of Questions : 6]

P3911

SEAT No. :

[Total No. of Pages : 1

[5075]-104

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

BM - 11 : 104 : Principles and Practices of Management and Organizational Behaviour

(2013 Pattern)

Time : 3 Hours] *[Max. Marks : 70*

Instructions to students :

1) ***Question No. 1 is compulsory***
2) ***Attempt any 3 from the remaining***
3) ***Figures to the right indicate full marks.***

Q1) a) Who is called the father of administrative management? Considering the changes in modern industry, how could you apply the principles of administrative management? **[15]**

b) Define management. List its functions. What is meant by management process? Discuss in detail? **[10]**

Q2) What are the different styles of "Leadership"? Which one is more suitable for IT Industries? Why? **[15]**

Q3) Explain the term Motivation. Discuss theory X, Y and Z with its relevance to the 2lst century organizations **[15]**

Q4) What do you mean by decision making? Decision making is essential function of management. Discuss the decision making phases/process **[15]**

Q5) What are the various ego states? What are the causes of conflict? How transactional analysis is used to resolve conflicts. **[15]**

Q6) Short notes (Any Three) **[15]**

a) Group vs. Team
b) Principles of bounded rationality
c) Decision making environment
d) Need and Process of organization
e) Planning

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Total No. of Questions : 4]

P3912

SEAT No. :

[Total No. of Pages : 2

[5075]-105
M.C.A. (Management Faculty) (Semester - I)
MT - 11 : Discrete Mathematics
(2013 Pattern)

Time : 3 Hours] *[Max. Marks : 70*

Instructions to students :

1) ***Question No. 1 is compulsory.***
2) ***Solve any TWO questions from question Nos. 2, 3, and 4.***
3) ***Use of Scientjfic Calculator and Statistical Tables are allowed.***
4) ***Figures to the right indicate full marks.***

Q1) a) Obtain the PCNF of following: **[5]**

$((P \rightarrow Q) \vee (Q \rightarrow R)) \rightarrow (P \rightarrow R)$

b) How many letters arrangement are there from A , B ,C , D , E , F,G if: **[5]**

i) A, B &C are combine together

ii) A, B &C are not combine together

c) Let X ={l,2,3,4,5}.and R:X $\rightarrow$ X where R = {(1,1),(l,2),(l,4),(1,5), (2,1),(2,3),(2,5), (3 ,4),(4,2),(4,4),(5,2),(5,5)}. Draw Matrix and digraph of R? **[5]**

d) Prove that: $(\exists x)(P(x) \wedge Q(x)) \Rightarrow (\exists x)P(x) \wedge (\exists x)Q(x)$ **[5]**

e) Prove the combinatorial Identity : **[5]**

$$\binom{n}{k} = \binom{n-1}{k} + \binom{n-1}{k-1}$$

f) Define: **[5]**

i) Abelian Group

ii) Universal Quantifier

iii) Existential Quantifier

Q2) a) Show that the given set of premises is inconsistent: **[5]**
$A \rightarrow (B \rightarrow C)$; $D \rightarrow (B \wedge \neg C)$ and$A \wedge D$

b) Let R be a relation on A={l,2,3,4,5}with **[5]**

$$M_R = \begin{bmatrix} 0 & 1 & 1 & 1 & 0 \\ 1 & 0 & 0 & 1 & 0 \\ 0 & 1 & 1 & 0 & 1 \\ 0 & 0 & 0 & 1 & 1 \\ 1 & 1 & 1 & 1 & 0 \end{bmatrix}$$

Find the relation and the Matrix of transitive closure by Warshall's Algorithm.

c) How many 4 digits number can be formed using the numbers 2, 3, 4,5,6 & 8 if: **[5]**

i) Repetition is allowed

ii) Number is odd and repetitions not allowed.

d) Find the number of non-negative integer solution of equation **[5]**
$X_1 + X_2 + X_3 = 13$ subject to constraints $x_1 \leq 5$, $x_2 \leq 5$ $x_3 \leq 5$.

Q3) a) How many Permutations can be formed from the words: **[5]**

i) STATISTICS

ii) ENGINEERING

b) Check the following statement is tautology or contradiction: **[5]**
$((P \rightarrow R) \wedge (\neg Q \wedge P)) \leftrightarrow ((P \vee Q) \wedge (P \wedge R))$

c) Find the coefficient of $x^3y^2z^5$ in the expansion of $(2x - 3y + z)^{10}$? **[5]**

d) Let R= {(l,1),(l,2),(2,2),(3,1),(4,2)} and **[5]**
S = {(2,4),(4,4),(2,5),(1,3)} Find S o (S o R) and (R o S) o R

Q4) a) Define Right Coset & Left Coset with example? **[5]**

b) Let A = {1,2,3,4,5} and R: R: A → A where **[5]**
R = {(1 ,2),(1 ,3),(1 ,5),(2,4),(2,5),(3 , 1),(3,2),(4,4)}.
Find Complement & Converse of R?

c) Among 10 students, 5 study mathematics, 6 study science, and 2 study both. How many of these students study neither mathematics nor science?**[5]**

d) Generate the code words generated by H, where **[5]**

$$H = \begin{bmatrix} 1 & 0 & 1 & 1 & 0 & 0 \\ 1 & 1 & 0 & 0 & 1 & 0 \\ 1 & 1 & 1 & 0 & 0 & 1 \end{bmatrix}$$

Total No. of Questions : 7]

P3913

SEAT No. :

[Total No. of Pages : 3

[5075]-201
M.C.A. Management (Semester - II)
IT - 21 : Object Oriented Programming Using C++
(2012/2013 Pattern)

Time : 3 Hours] *[Max. Marks : 70*

Instructions to students :

1) ***Question 1 and 8 are compulsory.***
2) ***Solve any five from questions No.2 to 7.***
3) ***Figures to the right side indicate full marks.***

Q1) Solve any five **[5 × 2 = 10]**

a) Explain rethrow () in exception handling

b) Explain void pointer

c) Explain unnamed namespaces?

d) Which operators cannot be overloaded?

What will be the output of the following code with explaination?

e)
```
#include <iostream.h>.
Class A
{
    int x,y;
Public;
    Void A (int a = 0, int b)
    {
    x = a;
    y = b;
    }
    Void display ( )
    {
    Cout <<x<< "|n" <<y',
    }
    };
    Void main ( )
    {
    A * ptr;
    Ptr → display ( );
    }
```

P.T.O.

f)
```
# include <iostream.h>
# include < conio.h>
void main ( )
{
clrscr ( );
int a = 6, b = 8, f;
float c = 3.5, d = 4.3, e;
a = e = (c > d)? c : d;
cout << "a = "<< a <<"e = " << e;
getch ( );
}
```

Q2) Solve the following (any two) **[2 × 5 = 10]**

a) What is constructor? Explain types of constructor?

b) Distinguish between overloaded function & function template?

c) What is standard template library (STL)? Explain components of STL?

Q3) Explain types of inheritance with suitable example of each type **[10]**

Q4) a) What is polymorphism? Explain static type polymorphism with example **[5]**

b) How does an inline function differ from a preprocessor macro? **[5]**

Q5) What are file input and output streams? Explain seekg( ), seekp( ), tellg( ), tellp( ) **[10]**

Q6) Write a program to overload +, – **[6]**

a) Operator for string

For eg + → string concatnation

– → substring of string

For eg.

i) S1 = wel S2 = come

S3 = S1 + S2 // welcome

ii) S4 = welcome.

S5 = S4 – 3 // wel

b) Write a program in C++ to design user define manipulator for following requirement?

- Left alignment
- Width (9)
- Fill ('#')
- Precision (5) **[4]**

Q7) a) Design a class student (roll no, name, address, age). Write a C++ program that should throw an exception when age is less than 18. **[5]**

b) Explain class template? Write a program for a class template to represent a matrix as generic matrix? **[5]**

Q8) Write short notes (Any two) **[2 × 5 = 10]**

a) Friend function & frient class

b) Pure virtual function

c) RTTI

Total No. of Questions : 6]

P3914

SEAT No. :

[Total No. of Pages : 2

[5075]-202
M.C.A. (Management Faculty) (Semester - II)
IT - 22 : DATABASE MANAGEMENT SYSTEM
(2012 & 2013 Pattern)

Time : 3 Hours] *[Max. Marks : 70*

Instructions to candidates :

1) ***Q.1 and Q.6 are compulsory.***
2) ***Solve any three from the remaining.***
3) ***Mention assumptions made for solving the case study.***

Q1) Matrix online purchase system is to be designed having following details. Customer can order one or more items. Each customer is identified by his / her name and an unique identification number. The postal address & email address of the customer are also required for delivery of the products.

i) Items have their name & price to be shown to the customers.
ii) Customers can purchase as many items as per their wish.
iii) Shopping carts contain at least one item.
iv) An order must have atleast one requested item.
v) The products are differentiated by the company's (brand) name.
vi) Payment made is "cash on delivery" the details of which need to be entered by the delivery person.

For the above scenario, Draw ERD and normalize the file layout upto 3NF **[20]**

Q2) Explain 3-tier architecture in detail. **[10]**

Q3) Explain deadlock handling & prevention. **[10]**

Q4) Explain log based recovery in details. **[10]**

Q5) Using following tables, write SQL statements (any 5) **[5 × 2 = 10]**

Vehicle : Vcode, Vtype, rate per km

Traveler : Travlr-no, travlr-nm, km, vcode, vdt

i) Display 'Travlr-no', 'Travlr-nm' 'km' in descending order of 'km'.
ii) Display 'Travlr-nm' who are traveling by Vehicle with Vcode 101 or 102
iii) Display 'Travlr-nm' who travelled on date ('vdt') 2016/02/21
iv) Display Vcode of vechicle which had km less than 190km
v) Display all details of travellers who travelled more than 100 km.
vi) Display details of all vehicles.

P.T.O.

Q6) Write Short Notes (Any 4) **[4 × 5 = 20]**

i) Generalization & specialization

ii) Database security

iii) RAID

iv) No-SQL

v) E.F. Codd's rules (any 5)

Total No. of Questions : 7]

SEAT No. :

P3915

[Total No. of Pages : 2

[5075]-203
M.C.A. (Management Faculty)
IT - 23 : Operating System Concepts
(2013 Pattern)

Time : 3 Hours] *[Max. Marks : 70*

Instructions to students :

1) ***Question 1 & 7 are compulsory.***
2) ***Answer any FOUR questions from remaining (Q2-Q6).***
3) ***Neat diagrams must be drawn wherever necessary.***
4) ***Figures to the right side indicate full marks.***

Q1) What is distributed operating system? Write advantages and disadvantages of DOS? **[10]**

Q2) Explain preemptive and non-preemptive scheduling. Explain in detail example of each type of Scheduling. **[10]**

Q3) a) What is system call? Give different system calls in operating system? **[5]**

b) What is deadlock. Explain the necessary and sufficient conditions for the deadlock. **[5]**

Q4) Consider the following snapshot of system has 5 processes A through E and four resources type R1 through R4. Total available resources are (R1, R2, R3, R4)=(6,3,4,2). **[10]**

Process	Allocation				Max			
	R1	R2	R3	R4	R1	R2	R3	R4
A	3	0	1	1	4	1	1	1
B	0	1	0	0	0	2	1	2
C	1	1	1	0	4	2	1	0
D	1	1	0	1	1	1	1	1
E	0	0	0	0	2	1	1	0

Answer the following question using banker's algorithm

a) What are the content of matrix need?

b) Is the system in an safe states.

P.T.O.

Q5) a) Explain the concept of virtual memory. **[5]**

b) Consider the following segment table **[5]**

Segment	Base	Length
0	363	500
1	1272	20
2	1675	1500
3	986	240
4	211	130

What are the physical addresses for the following logical addresses?

i) (0,425)
ii) (2,500)
iii) (1,150)
iv) (3,285)
v) (4,125)

Q6) Explain the different directory structures and their implementations. **[10]**

Q7) Write short notes (any four) **[20]**

a) Demand Paging
b) Thrashing
c) Process operations
d) Communication in client-server
e) Interrupts

Total No. of Questions : 7]

P3916

SEAT No. :

[Total No. of Pages : 2

[5075]-204

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

BM - 21 : Management Information System & Business Intelligence

(2012 & 2013 Pattern)

Time : 3 Hours] *[Max. Marks : 70*

Instructions to candidates :

1) ***Questions 1 and 7 are compulsory.***

2) ***Solve any four questions from remaining.***

Q1) a) Draw and Explain BI architecture. Enlist and explain any three BI technologies. **[7]**

b) Explain following methods (any two) **[8]**

i) Cluster analysis

ii) PCA

iii) Simulation

Q2) Draw and explain MIS structure based on organizational functions and process. **[10]**

Q3) Define the term Information and Data? Explain the factors in deciding quality of Information and data. **[10]**

Q4) Define DSS. Give characteristics & capabilities of DSS. Explain DSS components. **[10]**

P.T.O.

Q5) The XYZ company launched new soft-drink into the market. The company already started the manufacturing of the new launched product. Company wants to control the manufacturing of the same. Company wishes to take online feedback from their customer via company's website. Design the feedback form for the same and explain is these types of feedbacks are useful for controlling. **[10]**

Q6) Explain Herbert-Simon Model with example. **[10]**

Q7) Write Short Notes on (any 3) **[3 × 5 = 15]**

a) Heuristic Programming

b) DSS

c) EIS

d) Data Mining

Total No. of Questions : 6]

SEAT No. :

P3917

[Total No. of Pages : 1

[5075]-205
M.C.A. (Management Faculty) (Semester - II)
IT - 24 : Enterprise Resource Planning
(2013 Pattern)

Time : 3 Hours] *[Max. Marks : 70*

Instructions to students :

1) ***Q.No-1 & Q.No -6 is compulsory.***
2) ***Attempt any THREE from Q.No-2 to Q.No-5.***
3) ***Figures to right indicate full marks.***

Q1) Arogyam is Pharmaceuticals Company having plant at various places in India currently the organization has implemented Finance & Human Resource module of ERP. Now the company wants to implement ERP for its entire department in the organization. So list & explain modules Suitable for ABC pharmaceuticals for integration of remaining departments with existing modules. also describe the critical success factor of ERP implementation for improving company's business & customer satisfaction. **[20]**

Q2) Explain the stages of ERP implementation in brief'? **[10]**

Q3) How sales & distribution module will help Sales Department .discuss in brief **[10]**

Q4) Define ERP. Explain benefits of ERP with respect to manufacturing industry. **[10]**

Q5) List & explain critical success factor of ERP implementation. **[10]**

Q6) Write short Notes on (any four) **[20]**

a) ESS
b) OLAP
c) ERP Market
d) Finance Module
e) ERP Maintenance

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Total No. of Questions : 7]

SEAT No. :

P3918

[Total No. of Pages : 1

[5075]-301
M.C.A. (Management Faculty) (Semester - III)
IT - 31 : Web Technologies
(2012/2013 Pattern)

Time : 3 Hours] *[Max. Marks : 70*

Instructions to students :

1) ***Question 1 is compulsory.***
2) ***Solve any five from Q.2 to Q.7.***
3) ***Draw neat diagrams where necessary.***

Q1) Explain XML schemes, SAX parser, XSLT and SOAP with examples. **[20]**

Q2) What is CSS? Explain properties of list. Magrin, Border and background with examples. **[10]**

Q3) Design HTML form for student registration for filling online examination form with suitable fields and validate using Javascript. **[10]**

Q4) Explain fode in , fodeout toggle, animate and hide function of jquery with examples. **[10]**

Q5) a) Explain event handling in Javascript with suitable examples. **[5]**

b) Explain following tags with examples **[5]**

i) Div

ii) Iframe

Q6) What is httpd. conf? Explain various configuration derectives mentioned in it. **[10]**

Q7) Write short notes (Any Two): **[10]**

a) Certificate signing request.

b) Ajax methods.

c) Virtual Hosts.

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Total No. of Questions : 8]

P3919

SEAT No. :

[Total No. of Pages : 2

[5075]-302
M.C.A. (Management Faculty) (Semester - III)
IT - 32 : Data Communication and Computer Networks
(2012 & 2013 Pattern)

Time : 3 Hours] *[Max. Marks : 70*

Instructions to candidates :

1) ***Question 1 and 8 are compulsory.***
2) ***Attempt any five from remaining.***
3) ***Neat diagrams must be drawn wherever necessary.***
4) ***Figures to the right side indicate full marks.***

Q1) Divide block of addresses starting with 190.100.0.0/16 (65,536 addresses) into two groups of customers as below. **[10]**

a) First group has 64 customers each need 256 addresses.

b) Second group has 128 customers each need 128 addresses.

c) Third group has 128 customers each need 64 addresses.

Q2) a) What is exposed station problem in wireless LAN. **[5]**

b) How IMAP is better than other email protocols. **[5]**

Q3) a) Explain difference between OSI model & internet model. **[5]**

b) What is even and odd parity in error detection explain with example. **[5]**

Q4) a) What is persistent & non. persistent HTTP? **[5]**

b) What is NRM and ABM in HDLC. **[5]**

Q5) Explain DHCP working mechanism. Is it possible to assign static IP-address using DHCP. **[10]**

P.T.O.

Q6) Explain how IPV4 and IPV6 exist at same time? **[10]**

Q7) a) How telnet works? Explain in details. **[5]**

b) Explain working mechanism of open shortest path first routing protocol **[5]**

Q8) Write short notes on (any two) **[10]**

a) Grid computing
b) Proxy server
c) Packet switching
d) Supernetting
e) IPTV

Total No. of Questions : 7]

P3920

SEAT No. :

[Total No. of Pages : 2

[5075]-303
M.C.A. (Management Faculty) (Semester - III)
DATA STRUCTURE USING C++
(2012/2013 Pattern)

Time : 3 Hours] *[Max. Marks : 70*

Instructions to students :

1) ***Question 1 is compulsory.***
2) ***Solve any five questions from question 2 to 7.***
3) ***Assume suitable data whenever necessary.***
4) ***Figure to the right hand indicates full marks.***

Q1) Answer the following Questions. (Any four) **[4 × 5 = 20]**

a) Given the base address = 5000. Find out the address of cell A[2][4][3] of an array int A[3][6][4] using row representation. Assume an integer representation takes 2 bytes.

b) Define the term Data Structure. Give an abstract data structure for Queue.

c) Discuss the various data structure for representing polynomial of multiple variable.

d) Write short notes on B tree.

e) State the advantages of doubly linked list over a singly linked list, indicating their applications.

Q2) Obtain a AVL tree by inserting one integer at a time in the following sequence.
50, 55, 60, 15, 10, 40, 20, 45, 30, 47, 70, 80.
Draw a tree at each stage of insertion. Mention the rotation applied if any at each stage. **[10]**

Q3) a) Write a function for inorder traversal of right in threaded binary tree. **[5]**

b) Write a function to reverse the doubly linked list. **[5]**

Q4) Write a non recursive function for post order traversal of a binary tree. **[10]**

P.T.O.

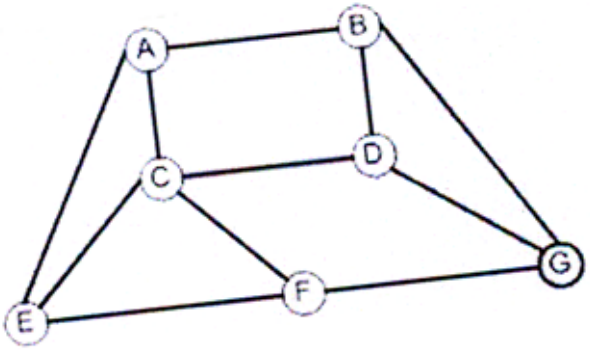
Q5) Convert the following postfix expression in to infix expression. Show the content of stack for each step **[10]**

ABCDE-+ $ * EF *-

Q6) a) Write Queue Full and Queue Empty functions for Circular Queue. Assume Queue is implemented using Array data structure. **[5]**

b) Write a function to create an expression tree from infix expression. **[5]**

Q7) Show the following graph implementation diagrammatically using array, array and linked list (mixed) and linked list representation. And also traversal the graph DFS and BFS way. **[10]**



Total No. of Questions : 7]

P3921

SEAT No. :

[Total No. of Pages : 1

[5075]-304
M.C.A. (Management Faculty) (Semester - III)
IT - 34 : 304 : Advanced Database Management Systems

Time : 3 Hours] *[Max. Marks : 70*

Instructions to students :

1) ***Question No. 7 is compulsory.***
2) ***Solve any five questions from 1 to 6.***
3) ***Figures at the right indicate marks.***
4) ***Qu. 7 carries 20 marks, Qu 1 to 6 carries 10 marks.***

Q1) Explain in detail Simple Object Access Protocol. Write its characteristics.

Q2) Explain I/O parallelism and design of parallel systems.

Q3) Explain various concurrency control approaches in DDBMS

Q4) Explain Object Oriented DBMS.

Q5) Explain in detail different methods of data cleaning.

Q6) Explain Association rule in data mining.

Q7) Write short notes on (Any FOUR)

a) Knowledge discovery process
b) Data cube
c) Mobile database
d) XML Applications
e) Mobility & Personal databases

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Total No. of Questions : 7]

SEAT No. :

P3922

[Total No. of Pages : 2

[5075]-305
M.C.A. (Management Faculty) (Semester - III)
IT - 35 : Object Oriented Analysis And Design
(2012/2013Pattern)

Time : 3 Hours] *[Max. Marks : 70*

Instructions to students :

1) *Question No. 1 and 7 is compulsory.*
2) *Solve any four from the remaining.*
3) *Mention assumptions for solving case studies.*

Q1) A company receive a number of items from many vendors and they are received at the receiving office. As they are receiving over 1000 items a day, it is now virtually impossible for the receiving office to check whether the vendor has supplied items against an order or has sent a wrong item. This information has to be sent to the purchase office. They are also not able to find out if there is surplus or deficit in delivery and whether the vendor adheres to delivery schedule. The items received at the receiving office are sent for physical inspection. The physical inspection consists of checking whether the quantities stated in the delivery note is same to the actual physical quantity as well as the quantity of item. Any discrepancy found during inspection is intimated to the purchase office. Item cleared by the inspection office are taken to the inventory by the stores officer which keeps ledger of stock and quantity available for each item. **[20]**

a) Draw Use Case diagram.
b) Draw Class diagram.

Q2) Draw a State Chart Diagram for telephone for making and receiving phone call. **[10]**

Q3) a) Draw a Sequence diagram for ATM. Make suitable assumption **[5]**
b) Draw collaboration diagram for sharing a message on Facebook to through mobile phone to your friend. **[5]**

Q4) Draw Activity diagram for student loan system in which university gives loan to students. For providing loan, university has set eligibility criteria. If a student is eligible for the loan, the agreement is prepared and documents are submitted. Then after verification of documents, loan is disburse and student receive loan. **[10]**

Q5) Explain OMT and OOSE with proper notations. **[10]**

Q6) Explain the best practices of Rational Unified Process and its phases the help of diagram. **[10]**

Q7) Write short notes on (any two) **[10]**

a) Include and extend

b) Object Persistent

c) Common class approach

d) Guidelines for developing test cases

Total No. of Questions : 7]

SEAT No. :

P3923

[Total No. of Pages : 1

[5075]-401
M.C.A. (Management Faculty) (Semester - IV)
IT - 41 : JAVA PROGRAMMING
(2013 Pattern)

Time : 3 Hours] *[Max. Marks : 70*

Instructions to candidates :

1) ***Questions 1 compulsory.***
2) ***Solve any six from remaining.***

Q1) Answer following: **[10]**

a) What is Abstract Classes?
b) List-out Thread Life Cycle Methods?
c) What is Marker Interfaces?
d) What is layout Manager?
e) List any four methods of file class?

Q2) Write JDBC application which will accept age from command line. If given age is less than '18' years then throw "NOTEligibleForVoting" user defined exception. **[10]**

Q3) Write threads application where first thread prints even number from '1' to '100' and other thread prints alternative characters from 'A' to 'Z'. **[10]**

Q4) Write a client-server Socket program to accept a string from client. The server will check whether the string is a palindrome or not and send response. **[10]**

Q5) Write an awt application which will have a list, a text field & a button with caption 'Add' when 'Add' button is clicked contents of text field should be added to list. **[10]**

Q6) Explain Architecture of RMI? Write simple RMI application. **[10]**

Q7) Short notes (Any Two): **[10]**

a) Bean persistence and introspection.
b) Runnable Interface
c) Garbage Collection.

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Total No. of Questions : 8]

P3924

SEAT No. :

[Total No. of Pages : 2

[5075]-402
M.C.A. (Management Faculty) (Semester - IV)
IT - 42 : MOBILE COMPUTING
(2012 / 2013 Pattern)

Time : 3 Hours] *[Max. Marks : 70*

Instructions to students :

1) ***Question No-1 & 8 are compulsory.***
2) ***Answer any three questions from remaining.***
3) ***Neat diagrams must be drawn wherever necessary.***
4) ***Figures to the right side indicate full marks.***

Q1) a) What is MANET? What are its characteristics? What are the challenges involved in MANET? How MANET is different than cellular network? **[10]**

b) Write android application to create the option menu with Bookmark, Save and Search options. Also Toast the appropriate message when clicked on the options. **[10]**

Q2) What was the primary goal of WAP? Explain functions of each layer in WAP architecture. **[10]**

Q3) a) Explain client server computing with adaptation. **[5]**

b) What are the different TCP issues in mobile transport layer? **[5]**

Q4) What is location provider? Explain how to create Mapbased activity. Explain the process to configure Mapviews. **[10]**

Q5) How External and Internal storage is managed with Android file system? Illustrate with example. **[10]**

Q6) What do you mean by Chat session in Android? What are the strength of SMS? How Sending and Listening operation performed for SMS message? **[10]**

P.T.O.

Q7) Write an Android application using **'Alert Dialog'** with two buttons of 'YES' and 'NO'. **[10]**

Q8) Write short notes (Any Four) **[20]**

a) Android database
b) GPRS
c) Embedded Linux
d) Android Telephony
e) Cellular Network
f) Android SDK

Total No. of Questions : 7]

SEAT No. :

P3925

[Total No. of Pages : 1

[5075]-403
M.C.A. (Management Faculty) (Semester - IV)
IT - 43 : INFORMATION SECURITY AND AUDIT
(2012/2013 Pattern)

Time : 3 Hours] *[Max. Marks : 70*

Instructions to students :

1) *Q.1 and Q.7 are compulsory.*
2) *Solve any four from Q.2 to Q.6.*
3) *Figures to the right side indicate full marks.*

Q1) A person has received a e-mail by the name of some reputed bank and asked to modify his online banking userid and password immediately, by visiting a bank's website by clicking on the URL given in the e-mail. Discuss security related issues and precautions to be taken. **[10]**

Q2) Explain ISO 17799 security policy standard in detail. **[10]**

Q3) Define the terms Threat and Risk. Explain the risk to information system security **[10]**

Q4) Explain the user access/accepted usage IT security in detail. **[10]**

Q5) Explain IT governance maturity model in detail. **[10]**

Q6) Explain the needs and objectives of IS Audit. **[10]**

Q7) Short notes (any Four) **[4 × 5 = 20]**

a) CIA triangle
b) Validation Controls
c) BCP and DRP
d) Ethical hacking
e) PDCA Model

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Total No. of Questions : 8]

SEAT No. :

P3926

[Total No. of Pages : 2

[5075]-404
M.C.A. (Management Faculty) (Semester - IV)
IT - 44 : Design and Analysis of Algorithms
(2012 & 2013Pattern)

Time : 3 Hours] *[Max. Marks : 70*

Instructions to the students :

1) ***Q.1 and Q.8 are compulsory.***
2) ***Solve any five questions from Q.2 to Q.7.***
3) ***Figures to the right indicate full marks.***

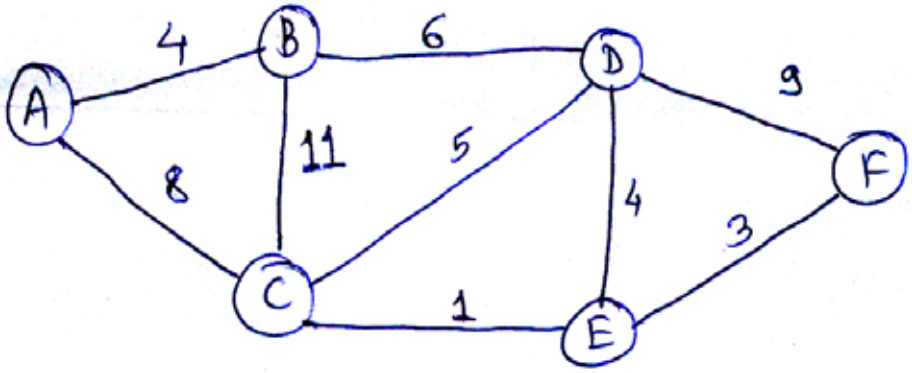
Q1) a) Define what is algorithm? Explain why the study of algorithm is necessary? **[5]**

b) Differentiate between divide & conquer strategy and Greedy method. **[5]**

Q2) Sort the following elements using quick Sort. Show all possible passes.

55, 90, 85, 99, 95, 70, 68, 57, 10, 23 **[10]**

Q3) Find minimum cost spanning tree for the following graph : use prim's algorithm **[10]**



Q4) Discuss 0/1 knapsack problem using dynamic programming technique and write algorithm for the same. **[10]**

Q5) a) Explain backtracking strategy. **[5]**

b) What is hamiltonian cycle? Explain with example. **[5]**

Q6) Find an optimal solution for knapsack problem (fractional) where knapsack M = 20, N = 3 $(P_1, P_2, P_3) = (25, 24, 15)$ and $(W_1, W_2, W_3) = (18,15,10)$**[10]**

Q7) a) Write an algorithm for travelling salesman problem using branch and bound technique. **[5]**

b) What is step count table explain with example. **[5]**

Q8) Write short notes (any two) **[10]**

a) NP - HARD and NP-COMPLETE

b) Set and disjoint set

c) Space & time complexity

Total No. of Questions : 5]

P3927

SEAT No. :

[Total No. of Pages : 4

[5075]-405
M.C.A. (Faculty of Management) (Semester - IV)
MT - 41 : OPTIMIZATION TECHNIQUES
(2012 & 2013 Pattern)

Time : 3 Hours] *[Max. Marks : 70*

Instructions to students :

1) ***Question No. 1 is compulsory.***
2) ***Attempt any THREE from the remaining.***
3) ***Use of non programmable calculator is allowed.***
4) ***Figures to the right indicate full marks.***

Q1) a) Find Optimal Solution for the given Transportation Problem which minimizes total transportation cost: **[7]**

Destinations

Origins		D_1	D_2	D_3	D_4	Supply
	O_1	12	10	8	8	11
	O_2	14	16	16	18	2
	O_3	7	9	7	9	7
	Demand	8	2	6	4	

b) A small project consists of seven activities, the details of which are given below : **[7]**

Activity	Time Estimate (days)			Preceding Activity
	Optimistic	Most Likely	Pessimistic	
A	11	13	15	-
B	12	16	20	A
C	13	13	13	A
D	14	20	26	B,C
E	13	17	21	B
F	12	15	18	D,E
G	4	14	24	D

i) Draw the Project Network.
ii) Find the critical path and the expected project completion time
iii) What is the probability that the project duration go beyond 44 days?

P.T.O.

c) In a Clinic, with a single doctor, patient arrives on an average every 20 minutes. **[7]**

The doctor takes 15 minutes to attend a patient. Find:

i) The average number of patients waiting for the doctor.

ii) The average time spend by a patient in the clinic.

iii) The idle time of the doctor in a 4-hour period.

d) A mill owner finds from his past records the costs of running a machine whose purchase price is Rs.6000 are as given below. Determine at what age is a replacement due? **[7]**

Year	Running Cost (Rs.)	Resale Value (Rs.)
1	1000	3000
2	1200	1500
3	1400	750
4	1800	375
5	2300	200
6	2800	200
7	3400	200

Q2) a) Solve the following LPP by Simplex Method: **[7]**

Max: $Z = 36x_1 + 60x_2 + 45x_3$

Subject to:

$x_1 + 2x_2 + 3x_3 \geq 30$

$4x_1 + 2x_2 + 5x_3 \geq 80$

$3x_1 + 3x_2 + 3x_3 \geq 90$

$x_1, x_2, x_3 \geq 0$

b) Seven jobs are to be processed through 2machines A and B. Processing times (in hours) are given below: **[7]**

Jobs	1	2	3	4	5	6	7
Machine A:	10	9	7	15	18	20	14
Machine B:	12	8	7	12	10	6	13

Q3) a) An aircraft requires 5000 Kg of rivets per year. The cost of 1 Kg of rivet is Rs.20 and it costs Rs.200 to place an order and the carrying cost is 10% per unit per year. Find: **[7]**

i) The economic order quantity.

ii) The number of orders per year.

iii) The optimum annual cost.

b) Following table represents performance of salesman (sales in '000 units) in different districts. Solve the assignment problem to maximize the sales. **[7]**

		District				
		D_1	D_2	D_3	D_4	D_5
Salesman	S_1	7	8	2	5	2
	S_2	2	8	6	7	6
	S_3	8	4	3	9	6
	S_4	9	8	4	2	5
	S_5	2	8	5	3	6

Q4) a) Define: **[7]**

i) Gradual Failure of Machines

ii) Holding Cost

iii) Optimum Lot Size

iv) Activity

v) Critical Path

vi) Float

vii) Dummy Activity

b) Solve the following LPP by Big M method: - **[7]**

Min : $Z = 3x_1 + 6x_2$

Subject to:

$7x_1 + 5x_2 \geq 35$

$4x_1 + 10x_2 \geq 80$

$x_1, x_2 \geq 0$

Q5) a) The time (days) and costs of a certain project is given in the following table: **[7]**

Activity	Normal		Crash	
	Time	Cost	Time	Cost
1–2	7	1600	4	1900
1–3	8	2000	5	2900
2–3	4	1100	2	1500
2–4	3	800	2	1400
3–4	0	0	0	0
3–5	6	900	3	1500
4–6	10	2500	6	3500
5–6	3	500	2	800

The indirect cost of the project is Rs.300 per day. Draw the project network and find the normal duration and cost. If the activities are systematically crashed, then what would be the optimum duration and cost of the project.

b) Customers arrive at a sales counter manned by a single person according to a Poisson process with a mean rate of 20 per hour. The time required to serve a customer has an exponential distribution with a mean of 100 seconds. Find the average waiting time of a customer. **[7]**

Find :

i) The utility factor.

ii) The average number of customers in the queue, waiting for the salesman.

iii) The probability that the customer has to wait for more than 5 minutes in the system.

Total No. of Questions : 7]

SEAT No. :

P3928

[Total No. of Pages : 2

[5075]-501
M.C.A. (Management Faculty) (Semester - V)
IT - 51 : Software Testing and Quality Assurance
(2012-13 Pattern) (Semester - V)

Time : 3 Hours] *[Max. Marks : 70*

Instructions to students :

1) ***Q.1 and Q.7 are compulsory.***
2) ***Attempt any 4 from the remaining.***
3) ***Figures to right indicate marks.***
4) ***Draw neat labelled diagrams wherever necessary.***

Q1) Write a detailed test plan for an application "Health@door steps" which has web as well as mobile inter face. Users can register to the application there after they can sign-in and order for grocery and vegetables. Payment can be done in cash-on-delivery (COD) or net-banking mode. After the delivery confirmation is sent using unique code, Also design suitable test cases. **[15]**

Q2) a) Calculate cyclomatic complexity for a program that checks whether a number is prime or not

b) What is unit and integration testing?

[5+5]

Q3) Explain the measures and models for software reliability with suitable example.**[10]**

Q4) a) What are different types of reviews? Explain with suitable examples.

b) Compare validation and verification.

Q5) Explain path, statement, branch and devision coverage in structural testing.**[10]**

Q6) Explain BVA, equivalence partitioning and orthogonal array testing techniques with suitable examples. **[10]**

Q7) Write short notes on (any 3) **[15]**

a) Alpha and Beta testing

b) Cleanroom software development

c) CAST

d) Object oriented testing

Total No. of Questions : 7]

P3929

SEAT No. :

[Total No. of Pages : 2

[5075]-502
M.C.A. (Management Faculty) (Semester - V)
IT - 52 : Software Project Management
(2012 & 2013 Pattern)

Time : 3 Hours] *[Max. Marks : 70*

Instructions to the candidates :

1) ***Question 1 and 7 are compulsory.***
2) ***Solve any four questions from remaining.***
3) ***Wherever necessary state assumptions give example and draw diagram***
4) ***Calculator is allowed.***

Q1) a) Draw a network diagram from the given information. **[10]**

i) Find start time, End time, total float and critical path.

ii) If activity 6-9 crashed by 2 week, draw network diagram and find out critical path and shortest path.

Activity	Duration in weeks
1-2	2
1-3	2
1-4	1
2-5	4
3-6	8
3-7	5
4-6	3
5-8	1
6-9	5
7-8	4
8-9	3

b) A project estimated for 300kloc has to be developed. For development project also requires **[10]**

i) Software reliability is high (1.15)

ii) Product complenity is high (1.15)

iii) Analyst capability is high (0.86)

iv) Programming language experiance is low (1.07)

v) Remaining all driver are treated as Nominal calculate Effort, development time period, staff size and productivity.

Q2) Consider a project with following functional units. **[10]**

a) Number of user inputs = 40
b) Number of user outputs = 30
c) Number of user enquiries = 25
d) Number of user files = 04
e) Number of external interfaces = 04

In addition to above, system requiries

i) Significant data communication (4)
ii) Performance is very critical (5)
iii) Designed code may be moderately reusable (2)
iv) System is not designed for multiple unstallations (0)

Other complenity adjustment factors are treated as average compute the function point for the project.

Q3) What is Risk Management? Explain its significance in software project management. **[10]**

Q4) What is SCM? Explain SCM process in details **[10]**

Q5) Explain S/W team structure? discuss about the team communication. **[10]**

Q6) Describe role of user in project management. **[10]**

Q7) Write short notes on the following (Any two) **[10]**

a) Reel's approach
b) MS-project
c) Version control
d) Group behavior

Total No. of Questions : 7]

SEAT No. :

P3930

[Total No. of Pages : 1

[5075]-503
M.C.A. III (Management Faculty) (Semester - V)
IT - 53 : Emerging Trends in Information Technology
(2012 Pattern)

Time : 3 Hours] *[Max. Marks : 70*

Instructions to students :

1) ***Q.1 and Q.7 are compulsory.***
2) ***Attempt any four questions from remaining.***

Q1) MKCL wonts to starts distance learning education. As an IT consultont do comparative analysis of various e-learning types, models & suggest suitable model. **[15]**

Q2) What is E-commerce? Explain various electronic payment models. **[10]**

Q3) What is cloud computing? Explain different models of cloud computing. **[10]**

Q4) Explain security issue with social networking sites. **[10]**

Q5) What is CMS? Explain work flow of CMS. **[10]**

Q6) What is M-commerce? Explain M-Commerce applications in detail. **[15]**

Q7) Write Short Notes (any three)

a) Standards for e-learning
b) Point of sales system
c) Types of content
d) Types of social networking sites
e) Cloud security

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Total No. of Questions : 7]

SEAT No. : ____

P3931

[Total No. of Pages : 2

[5075] - 504
M.C.A. (Management Faculty)
IT - 54 : ADVANCED DEVELOPMENT TECHNOLOGY
(2013 Pattern) (Semester - V)

Time :3 Hours] ***[Max. Marks :70***

Instructions to candidates:-

1) ***Question No. 1 is compulsory.***
2) ***Solve any four from remaining.***
3) ***Figures to the right indicates full marks.***

Q1) Explain server side state management techniques in detail. **[10]**

Q2) Explain any two navigation controls with the help of web. Site map file. **[15]**

Q3) Explain any five login controls in detail. **[15]**

Q4) Design a form and write code to :- **[15]**

a) Populate and display books name in a drop down list.

b) Select a book name and display it's details in under lying text boxes.

c) Add a record.

d) Delete selected record.

e) Edit selected record.

Name of table : Book Master (Book id, title, Author, Publisher, price, ISBN)

Name of server: MYASPDB (SQL server)

Q5) a) Write a program to implement hit counter using global.asax file. **[7]**

b) Write a program using file upload control to upload a file. Also check that file should be image only and file size should not be greater than 2 MB.**[8]**

P.T.O.

Q6) Explain the following controls (Any three) **[15]**

a) Label control.

b) Adrotater control.

c) Wizard control.

d) Listbox control.

Q7) Write short on following (Any three) **[15]**

a) Validation control (Any two).

b) Web services.

c) AJAX server side control.

d) Namespaces.

Total No. of Questions : 7]

SEAT No. : ____

P3932

[Total No. of Pages : 2

[5075] - 505
M.C.A. (Management Faculty)
IT - 55 : ADVANCED INTERNET TECHNOLOG
(2013 Pattern) (Semester - V)

Time :3 Hours] ***[Max. Marks :70***

Instructions to the candidates:-

1) ***Questions 1& 7 are compulsory.***
2) ***Answer any four questions from remaining (Q2-Q6).***
3) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right side indicate full marks.***

Q1) a) Explain how to handle SESSION and COOKIES in PHP with example. **[10]**

b) Explain Apache Tomcat and Jaspher in brief? **[5]**

Q2) Explain CGI architecture. Write a perl program to create a file, insert into that file and display the contents into that file. **[10]**

Q3) Distinguish between following: **[10]**

a) GET and POST

b) Include and Require

Q4) What is ORM and Hibernate? What are the levels of ORM? **[10]**

Q5) Write a JSP code to generate area wise, product sales report, for medical shop. Display the expected report in proper format. **[10]**

P.T.O.

Q6) Design html page to display list of available books in a listbox. Allow user to select multiple books & submit form. Write Servlet code to display selected book. **[10]**

Q7) Write short notes on (Any three) **[15]**

a) Perl Array Function.

b) JSP directives

c) Http request & response

d) Aspecets which can affect the performance of Tomcat server.

e) Servlet life cycle.