Total No. of Questions : 7]

SEAT No. :

P2288

[Total No. of Pages : 2

[4675] - 101
M.C.A. (Management)
IT-11: COMPUTER ORGANIZATION
(2012 Pattern) (Semester - I)

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

Instructions to the candidates:

1) ***Q.No.1 and Q.No. 7 are compulsory.***
2) ***Answer any FOUR from Q.2 to Q.6.***
3) ***Figures to right indicate marks.***
4) ***Draw neat diagrams wherever necessary.***

Q1) a) Compare the architectural features of 32 bit and 64 bit architecture. **[10]**

b) Discuss the characteristics of system Buses. **[5]**

Q2) a) Construct 3×8 decoder and explain its truth table. **[5]**

b) Construct JK flip-flop and describe it's functions. **[5]**

Q3) a) Convert the following: **[5]**

i) $(127.6)_8 = (\quad)_{16}$

ii) $(AFED.15)_{16} = (\quad)_{10}$

b) Solve $F(A, B, C, D) = \sum(1,3,5,9,13,15)$ using Karnaugh's map. **[5]**

Q4) What are the registers used in DMA? Discuss DMA interfacing with processor. **[10]**

Q5) Explain various types of interrupts. Draw the state diagram of Instruction Execution cycle with interrupts. **[10]**

P.T.O.

Q6) a) Compare Hardwired Vs micro program control unit. **[5]**

b) What is pipelining? Discuss hazards and overcoming techniques in pipelining. **[5]**

Q7) Write short notes (any THREE) **[15]**

a) Types if parallel processors.

b) System software.

c) Functional units of pentium processor.

d) RISC.

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Total No. of Questions : 7]

SEAT No. :

P2289

[Total No. of Pages : 2

[4675] - 102
M.C.A. - I (Management)
IT - 12 : 'C' PROGRAMMING
(2012 Pattern) (Semester - I)

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

Instructions to the candidates:

1) ***Q.1 is compulsory.***
2) ***Solve any five questions from question number 2 to 7.***
3) ***Assume suitable data whenever necessary.***
4) ***Figures at right hand indicates full marks.***

Q1) Answer the following questions. (any four). **[20]**

a) What are the control structures in C? Give an example each.

b) What are escape sequences?

c) What are the actual and formal parameters of the function?

d) Distinguish between malloc ( ) and calloc ( ).

e) Distinguish between break and continue.

Q2) a) Find GCD of a number using recursion in c program. **[5]**

b) Write a C program to find the sum of following series. **[5]**

$$\sin(x) = x - \frac{x^3}{3!} + \frac{x^5}{5!} - \frac{x^7}{7!} + ... \frac{x^n}{n!}$$

Q3) a) Write a C program that find the sum of minor diagonal elements of matrix. **[5]**

b) Write a function to reverse the string with out using library function. **[5]**

P.T.O.

Q4) a) Write a function to find x rise to y using bit wise operators. **[5]**

b) What is bit field operator? Explain with example. **[5]**

Q5) Write a graphics C program that accept 'n' year and rain fall on that year and display pie chart for it. **[10]**

Q6) Write a C program to calculate difference between two time periods. (use structure variable to store time in hour, minute and second). **[10]**

Q7) Write a C program to compares two binary files, printing the first byte position where they differ. **[10]**

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Total No. of Questions : 6]

SEAT No. :

P2290

[Total No. of Pages : 1

[4675]-103

M.C.A. (Management Faculty)

BM - 11 - 104 : PRINCIPALES AND PRACTICES OF MANAGEMENT AND ORGANIZATIONAL BEHAVIOUR

(2012 Pattern) (Semester - I)

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

Instructions to the candidates:

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

Q1) a) Classify various types of structure of organization with examples? Which structure is suitable in companies like TVS motors. **[15]**

b) Define motivation? Describe the role of Meslows theory with it's limitation. **[10]**

Q2) Explain the process of Management? Discuss the Managerial Functions. **[15]**

Q3) Define organization and discuss different types of organizational structures. **[15]**

Q4) Explain briefly Role of Decision Making in increasing organisation effectiveness. **[15]**

Q5) Classify the contribution of Mr. Fayol in modern theory of Management? **[15]**

Q6) Write Short Notes on (any three): **[15]**

a) Level of Management.

b) Team building.

c) Conflict Management.

d) leadership.

e) Group and Group Dynamics.

☛ ☛ ☛

Total No. of Questions : 7]

SEAT No. :

P2291

[Total No. of Pages : 2

[4675]-104
M.C.A. - I (Management)
IT - 13 : SOFTWARE ENGINEERING
(2012 Pattern) (Semester - I)

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

Instructions to the candidates:

1) ***Q.1, and Q.7 are compulsory.***
2) ***Attempt any Three From Q.2 To Q.6.***
3) ***Figures to right indicate marks.***
4) ***Write Assumptions wherever Necessary.***

Q1) A RTO has laid down following procedure for obtaining Permanent Driving License for various non commercial vehicles. A candidate for valid Learning License can submit his form and License test fees of his own or through Motor Driving School. The data on form is entered and exact date and time of driving test will be allocated to the candidate. On the days of test candidate can bring has own vehicle or can use vehicle of Motor Driving School. The available Inspector will conduct Test and ask question related to traffic sine to the candidate. On the basis of test and answer, the concerned Inspector puts his remarks on the form and makes signature along with his name and designation. If the remark is PASSING, the candidate has to pay License Fees at a cash counter and a cash receipt will be given to candidate. Candidate can collect License after 3 days. The clerk at cash counter adds the test data, Fees data details to the form record. The form test data then is complied by EDP officer and generates license for the day and hands it over to counter clerk. A License will be given to candidate after the cash receipt.

a) Draw Context & First Level DFD. **[10]**

b) Prepare software requirement specification in detail. **[10]**

Q2) All the states in country have arranged to implement Value Added Tax(VAT) on the various commodities sold in their respective states. The VAT rules are as follows: **[10]**

- If the commodity is product within the state 4% VAT is applicable.
- If commodity falls in Specified List. Non-listed Commodities will be charged 8% VAT.
- If the commodity is from outside state, 8% VAT is applicable for all.
- If the commodity is imported, then 12% VAT is applicable for all.
- If it is second sale, the 4% VAT is applicable for all Commodities

Draw Decision Table and Decision Table and write Structured English to compute VAT.

P.T.O.

Q3) CASE tools assists various phases of software development - justify. **[10]**

Q4) Explain features of good GUI Design with example. **[10]**

Q5) Explain method of estimating software maintenance cost. Give various components of legacy system. **[10]**

Q6) Explain importance of FDD & E-R Diagram. **[10]**

Q7) Write short notes on (Any Four): **[20]**

a) Reverse Engineering.

b) Web Engineering.

c) Object Oriented Methodology.

d) Agile Process.

e) Spiral Model.

Total No. of Questions : 4]

SEAT No. :

P2292

[Total No. of Pages : 3

[4675] - 105
M.C.A.
(Management Faculty)
MT - 11 - 105 : DISCRETE MATHEMATICS
(2012 and 2013 Pattern) (Semester - I)

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

Instructions to the candidates:

1) ***Q.No. 1 is compulsory***
2) ***Solve any two from Question numbers 2,3 & 4.***
3) ***Use of statistical table and non programmable calculator is allowed.***
4) ***Figures to the right indicate full marks.***

Q1) Attempt the following:

a) Using the following statements: **[5]**

P : This book is good. Q : This book is costly.

Write the following statements in symbolic form.

i) This book is good & costly.

ii) This book is not good but costly.

iii) This book is cheap but good.

iv) This book is neither good nor costly.

v) If this book is good then it is costly.

b) Define Bijective Function and illustrate with an example. **[5]**

c) If ten identical paintings are allocated to n rooms so that no room gets more than 1 painting. calculate if : 1) $n = 12$ 2) $n = 4$. **[5]**

d) If 8 identical blackboards are to be divided among 4 schools, how many divisions are possible? **[5]**

i) With no restriction.

ii) If each school must get at least 1 blackboard.

P.T.O.

e) State & Prove Generalized Principle of Inclusion and exclusion. **[5]**

f) Let (G,*) be a group of integers under addition operation. Determine whether set of all even integers is a subgroup of G or not. **[5]**

Q2) Solve the following:

a) Show that : $(\exists x)\mathrm{M}(x)$ logically follows from the premises $((x)\,(\mathrm{H}(x) \rightarrow \mathrm{M}(x))$ and $(\exists x)\mathrm{H}(x)$. **[5]**

b) Let X = {1,2,3,4,5}. and R : X $\rightarrow$ X where R = {<*x,y*>/*x*<*y*}Find R. Draw Matrix and digraph of R? **[7]**

c) 1) How many seven letter palindromes can be made out of English Letters. **[8]**

i) If no letter can be repeated ii) If letters can be repeated

2) How many Permutations can be formed from the words:

i) MATHEMATICS ii) ENGINEERING

Q3) Solve the following:

a) Check the equivalence of the following statements using truth tables: **[5]**

$$\mathrm{A} \rightarrow (\mathrm{B} \vee \mathrm{C}) \Leftrightarrow (\mathrm{A} \wedge \neg \mathrm{B}) \rightarrow \mathrm{C}$$

$$(\mathrm{A} \rightarrow C) \wedge (\mathrm{B} \rightarrow \mathrm{C}) \Leftrightarrow (\mathrm{A} \vee \mathrm{B}) \rightarrow \mathrm{C}$$

b) Find the code words generated by H, where **[7]**

$$\mathrm{H} = \begin{pmatrix} 1 & 1 & 1 & 1 & 0 & 0 \\ 1 & 1 & 0 & 0 & 1 & 0 \\ 1 & 0 & 1 & 0 & 0 & 1 \end{pmatrix}$$

c) i) Each of the n children in a class is given a book by the teacher, the books are all distinct. The students are required to return the books after 1 week. The same n books are again distributed for another week. In how many distributions does nobody get the same book twice? **[4]**

ii) How many integers between 1 and 500, both inclusive are divisible by 3 or 5. **[4]**

Q4) Solve the following:

a) Let A = {*a*,*b*,*c*,*d*,*e*} and R : R : A $\rightarrow$ A where R = {(*a*,*c*), (*a*,*b*), (*b*,*d*), (*b*,*c*), (*c*,*e*), (*d*,*d*),(*d*,*e*), (*e*,*d*)}. Find Complement and Converse of R? **[5]**

b) Obtain PCNF for the following: $(P \wedge Q) \vee (\neg P \wedge R)$. **[7]**

c) State and prove multinomial theorem and hence find the coefficient of $X^6Y^6Z^5$ in the expansion of $(2X^2-3Y^3+5Z)^{10}$. **[8]**

Total No. of Questions : 7]

SEAT No. :

P2254

[Total No. of Pages : 2

[4675] - 11
M.C.A. (Management Faculty)
IT-11: COMPUTER ORGANIZATION
(2008 Pattern) (Semester - I)

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

Instructions to the candidates:

1) ***Q.No.1 and Q.No. 7 are is compulsory.***
2) ***Answer any four from the remaining.***
3) ***Figures to right indicate marks.***
4) ***Draw neat diagrams wherever necessary.***

Q1) a) Explain 80486 Architecture with neat diagram. **[10]**

b) Explain parallel processing concept in detail. **[5]**

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

a) $(101110)_2 = (\ ?)_8$

b) $(952)_{10} = (?)_8$

c) $(11010011)_2 = (?)_{16}$

d) $(ABC)_{16} = (?)_2$

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

Q3) Explain DMA working in detail with neat diagram. **[10]**

Q4) Explain Instruction-Execution-Interrupt cycle in detail with neat diagram. **[10]**

Q5) Explain memory Hierarchy with neat diagram in detail. **[10]**

Q6) What is Demultiplexer? Explain working of D-latch in detail. **[10]**

P.T.O.

Q7) Write short notes (Any THREE) **[3×5 = 15]**

a) Types of softwares.

b) Performance of processor.

c) Addressing modes.

d) Pipelining Hazards.

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Total No. of Questions : 7]

SEAT No. :

P2255

[Total No. of Pages : 4

[4675] - 12
M.C.A. (Management Faculty)
IT - 12 : 'C' PROGRAMMING
(2008 Pattern) (Semester - I)

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

Instructions to the candidates:

1) ***Q.1 is compulsory.***
2) ***Solve any five questions from 2 to 7.***
3) ***Assume suitable data whenever necessary.***
4) ***Figure write hand indicates full marks.***
5) ***Answer all parts of a question at one place.***
6) ***Answer each part concisely.***

Q1) Explain and find output of the following programs. **[20]**

a)
```
# include <stdio.h>
int main( ) {
    static char *s[ ] = {"black", "white", "pink", "violet"};
    char **ptr[ ] = {s+3, s+2, s+1, s}, ***p;
    p = ptr;
    ++p;
    printf("%s", **p+1);
    return 0;
}
```

b)
```
# include<stdio.h>
void fun(void *p);
int i;
int main ( ){
```

P.T.O.

```
        void *vptr;
        vptr = & i;
        fun(vptr);
        return 0;
    }
    void fun(void *p) {
        int **q;
        q = (int**) & p;
        printf("%d\n", **q);
    }
```

c)
```
    # include <stdio.h>
    int main ( ) {
        printf("%d, %d\n", size of (NULL), sizeof(""));
        return 0;
    }
```

d)
```
    #include <stdio.h>
    int main (){
        void *vp;
        char ch = 74, *cp = "JACK";
        int j = 65;
        vp = & ch;
        printf("%c", *(char*) vp);
        vp =&j;
        printf("%c", *(int*) vp);
        vp = cp;
        printf("%s", (char*) vp+2)
        return 0;
    }
```

e)

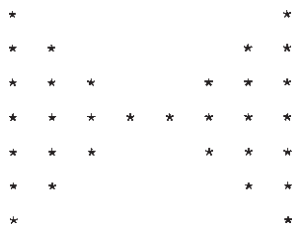
```
#include<stdio.h>

int main() {

    int arr[2][2][2]   = {10, 2, 3, 4, 5, 6, 7, 8};

    int *p, *q;

    p = & arr[1][1][1];

    q = (int*) arr;

    printf(“%d, %d\n”, *p, *q);

    return 0;

}
```

Q2) a) Write a recursive function to display string in reverse. **[5]**

b) Write a C program to find out the sum of series 1^3 + 2^3 +... + n^3. **[5]**

Q3) a) Write a C program to display major diagonal elements of a matrix. **[5]**

b) Write a C program to print the following triangle: **[5]**



Q4) Write a c program to Concatenate many files and store them in a file using command line argument. **[10]**

Q5) Write a C program to create student structure having field roll_no, stud_name, mark 1, mark 2, mark 3 calculate the total and percentage of each student and arrange the records in descending order of percentage. **[10]**

Q6) a) Write a graphics program to accept 'n' points from user and draw a polygon. Fill this polygon with lines. **[5]**

b) Accept a string in upper case and convert it into lower case without using library function. **[5]**

Q7) Write Short notes on (any Two). **[10]**

a) Bitwise operators.

b) Storage classes in C.

c) Branching statements in C.

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Total No. of Questions : 6]

SEAT No. :

P2256

[Total No. of Pages : 1

[4675]-13

M.C.A. (Management Faculty)

BM - 11 : PRINCIPLES AND PRACTICES OF MANAGEMENT FUNCTION AND ORGANIZATIONAL BEHAVIOUR

(2008 Pattern) (Semester - I)

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

Instructions to the candidates:

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

Q1) a) What is organization? Define principles of organization and classify different structures of organization. **[15]**

b) Discuss Theory X and Theory Y of motivation. **[10]**

Q2) Signify the role of 'Decision making' for improving organization effectiveness. Discuss Herbert Simon's Model in brief. **[15]**

Q3) Explain how motivation helps to achieve success in an IT industry with the help of Maslow's need hierarchy theory. **[15]**

Q4) What is Conflict Management? How can conflict be resolved in organisations? **[15]**

Q5) "Henry Fayol is known as Father of modern Management". Discuss. **[15]**

Q6) Write Short Notes (any 3): **[15]**

a) Team Building.
b) Johari Window.
c) Centralisation Vs Decentralisation.
d) H.R. approaches to Management.
e) Leadership style.

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Total No. of Questions : 7]

SEAT No. :

P2257

[Total No. of Pages : 2

[4675]-14

M.C.A. (Management Faculty)

IT - 13 : OPERATING SYSTEM CONCEPTS

(2008 Pattern) (Semester - I)

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

Instructions to the candidates:

1) ***Question No. 7 is compulsory.***
2) ***Solve any five questions from 1 to 6.***
3) ***Figures to the right indicate full marks.***

Q1) a) Explain priority scheduling with example. Also explain the problem of starvation for priority scheduling. **[5]**

b) Explain the Reader-Writer synchronization problem and solution for solving the Problem. **[5]**

Q2) Explain the concept of

a) Free space Management. **[5]**

b) Virtual file system. **[5]**

Q3) Consider the system with five processes P={p0, p1, p2, p3, p4} and four resources type {W, X, Y, Z}. There are 3 instances of type W, 14 instances of type X, 12 instances of type Y, 12 instances of type Z. the allocation and maximum demand matrix are as follows.

Process	Allocated Resources				Maximum requirements			
	W	X	Y	Z	W	X	Y	Z
P0	0	6	3	2	0	6	5	2
P1	0	0	1	2	0	0	1	2
P2	1	0	0	0	1	7	5	0
P3	1	3	5	4	2	3	5	6
P4	0	0	1	4	0	6	5	6

Answer the following questions:

a) Is the system in a safe state. **[8]**

b) Can the request made by process p4 (0, 0, 4, 1) be granted? **[2]**

P.T.O.

Q4) a) Explain logical and physical address space and role of MMU. **[5]**

b) How swapping is applied between memory and backing store. **[5]**

Q5) What is deadlock? Explain deadlock prevention and deadlock detection with example. **[10]**

Q6) Suppose that a disk drive has 200 tracks and the read/write head starts at track 100. The request queue, in order, contains requests for tracks:

55, 58, 18, 90, 160, 38

Starting from the current head position, what is the total distance that the disk arm moves to satisfy all pending requests for each of the following disk scheduling algorithms.

a) SSTF. **[5]**

b) SCAN. **[5]**

Q7) Write short notes on (Any four) : **[20]**

a) Multiprogramming.

b) Android Features.

c) Features of Distributed OS.

d) Shared pages.

e) Process Simulation.

Total No. of Questions : 4]

SEAT No. :

P2258

[Total No. of Pages : 2

[4675] - 15
M.C.A. (Management Faculty)
MT - 11 : DISCRETE MATHEMATICS
(2008 Pattern) (Semester - I)

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

Instructions to the candidates:

1) ***Question No.1 is compulsory.***
2) ***Attempt any two questions from Q.No. 2, 3 and 4.***
3) ***Figures to the right side indicate full marks.***
4) ***Use of Scientific Calculator is allowed.***

Q1) a) Check the equivalence of the following statements truth tables: **[5]**

$$P \to (Q \vee R) \Leftrightarrow (P \wedge \neg Q) \to R)$$

$$(A \to C) \wedge (B \to C) \Leftrightarrow (A \vee B) \to C)$$

b) Find the number of regions defined by a connected planar graph with 6 nodes and 10 edges. Draw one such graph. **[5]**

c) Let A = {1, 2, 3, 4, 5}, R = { < 1, 1 >, < 1, 2 >, <2,1>, < 2, 2 >, <3, 4>, < 4, 3>, <3, 3>, < 4, 4 >, < 5, 5 >}. Is R an equivalence relation? **[5]**

d) Let S = {1, 2, 3, 6 ,12} and * be a binary operation defined on S where $a^* b$ = G.C.D(a,b). Determine whether (S,*) is a **[5]**

i) Semigroup

ii) Monoid

e) Prove that in any graph the number of odd vertices is always even. **[5]**

f) Let I_7 be the set of integers modulo 7. Define $f : 17 \to 17$ by $f(x) = 3x$ (mod 7). Determine whether the function is one-to-one and onto. **[5]**

Q2) a) Express following using quantifiers. **[5]**

i) There exists a polar bear whose colour is not white.

ii) Every polar bear that is found in cold region has a white colour.

P.T.O.

b) Check the following statement is tautology or contradiction: **[7]**

$$((P \to R) \wedge (\neg Q \wedge P)) \leftrightarrow ((P \vee Q) \wedge (P \wedge R))$$

$$((P \vee Q) \wedge (P \wedge R)) \leftrightarrow (P \wedge R)$$

c) i) Let A = {2, 3, 4, 5} R = { (2,3), (3,3), (4,5), (5,1) }. Is R asymmetric or antisymmetric? **[4]**

ii) Let *f* and *g* be two permutations of degree 5 as given below. Find fog and gof **[4]**

$$f = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 \\ 2 & 3 & 4 & 5 & 1 \end{pmatrix} \quad \text{and} \quad g = \begin{pmatrix} 1 & 2 & 3 & 4 & 5 \\ 1 & 2 & 4 & 5 & 3 \end{pmatrix}$$

Q3) a) Find the converse and contra positive of the implication: **[5]**

If you are good in Mathematics then you are good in Logic.

b) Let A = {1, 2, 3, 4, 5} and R : A × A such that R = { (x,y)/X > Y}, then Find R, Draw Matrix and draw the graph of R. **[7]**

c) Write the code words generated by H, where **[8]**

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

Q4) a) Obtain the PDNF for the following: **[5]**

$$(P \wedge Q) \vee (\neg P \wedge Q) \vee (P \wedge \neg Q)$$

b) Find the total number of nodes in a full binary tree with 20 leaves. Draw the following graphs. **[7]**

i) Two ternary trees with 9 leaves.

ii) Two binary trees with 7 leaves

c) Define the following terms with suitable examples: **[8]**

i) Eccentricity of a vertex.

ii) Edge connectivity and vertex connectivity.

iii) Complete Bipartite Graph.

iv) Isomorphic graphs.

Total No. of Questions : 7]

SEAT No. :

P2295

[Total No. of Pages : 2

[4675] - 203
M.C.A. (Management Faculty)
IT -23: OPERATING SYSTEM CONCEPTS
(2012 & 2013 Pattern) (Semester - II)

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

Instructions to the candidates:

1) ***Questions 1& 7 are compulsory.***
2) ***Solve any 4(four) from remaining.***
3) ***Make suitable assumptions & draw neat diagrams if required.***

Q1) a) What do you mean by preemptive algorithm? Explain any two preemptive scheduling algorithm for CPU with example. **[10]**

b) Explain Resource allocation graph. **[5]**

Q2) Explain RAID structure in detail. **[10]**

Q3) What is demand paging? Explain how it is implemented by OS. **[10]**

Q4) Explain the working of Banker's algorithm for the deadlock avoidance with example. **[10]**

Q5) Explain inter process communication & its various techniques in detail. **[10]**

Q6) Consider the following page reference string. Calculate total page faults for LRU & FIFO with 3 frame list. **[10]**

7, 0,1,2,0,3,0,4,2,3,0,3,2,1,2,0,1,7,0,1

P.T.O.

Q7) Write short Notes (any 3). **[15]**

a) Features of Android OS.

b) Disk performance Issues.

c) Page fault.

d) Logical & physical view of OS.

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Total No. of Questions : 7]

SEAT No. :

P2296

[Total No. of Pages : 2

[4675] - 204
M.C.A.
MANAGEMENT FACULTY
BM 21 - Management Information System and Business Intelligence
(2012 and 2013 Pattern) (Semester - II)

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

Instructions to the candidates:

1) ***Q.No. 1 is compulsory.***
2) ***Attempt any 5 questions from Q.2 to Q.7.***

Q1) Answer the following:

a) What mean by BUSINESS INTELLIGENCE.Explain its need for business. **[7]**

b) Draw BUSINESS INTELLIGENCE Architecture and explain it in details. **[7]**

c) Explain use of Data Warehousing and Data mining in modern business. **[6]**

Q2) How could you define Information and data? Explain the factors in deciding quality of Information and data. **[10]**

Q3) What are its limitations and advantages of Herbert - Simon model of decision making? **[10]**

Q4) Explain role of M.I.S in today's business world. Write the MIS structure based on organizational functions and process? **[10]**

Q5) Differentiate the following in details with example **[10]**

a) D.S.S. and Expert System.

b) Enterprise and Executive Support System.

P.T.O.

Q6) Wal-Mart house India is in the business of sales and distribution of consumer goods in all categories. You as an IT expert prepare a BI solution for the Wal-Mart house India operation. Assume suitable data and prepare a decision making solution for it. **[10]**

Q7) Write short note on following (Any 2) **[10]**

a) Simulation.

b) Law of requisite variety.

c) BI Tools - concept of dashboard.

Total No. of Questions : 7]

SEAT No. :

P2297

[Total No. of Pages : 2

[4675] - 205

M.C.A. (Management Faculty)

IT-24: ENTERPRISE RESOURCE PLANNING

(2012 and 2013 Pattern) (Semester - II)

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

Instructions to the candidates:

1) ***Q.1 is compulsory.***
2) ***Attempt any 5 questions from Q2 to Q7.***
3) ***Figures to the right indicate full marks.***

Q1) a) A $5M Company that Manufactures and Sells Storage Solutions for various firms in India. They use an outside contractor to build software/ hardware appliances for storage, then sell through a distribution channel, sell service and support it. They needed software to track components and their stock.

Their key requirements were inventory management, PO, ECO change history, serialization of customer equipment and integration with Salesforce for customer history.

But they ran into trouble from the very beginning. The consultant assigned to work with them-one of the vendor's less capable staff members-did not understand their type of business.

The company found that the software was not set up properly and required customizations from the beginning, which has locked them into unresolvable problems. They also feel its overall capabilities for manufacturing are very limited. The software was overly complicated for their needs.

Discuss BPR lifecycle in detail with suitable diagram. **[10]**

b) Explain the need and importance of ERP system. **[10]**

Q2) Discuss the modules and sub modules in Human Resource Management.**[10]**

Q3) Explain the modules in Purchase and Sales management in ERP systems.**[10]**

P.T.O.

Q4) Explain the important role in ERP implementation. **[10]**

Q5) Explain in detail ERP-Human Resource Management and Production Planning, Control and Management. **[10]**

Q6) What are the ERP V/S In-house Applications? **[10]**

Q7) Write a short note on (any Two). **[10]**

a) OLTP.

b) Post Evaluation and Maintenance.

c) Customer Relationship Management.

☼ ☼ ☼

Total No. of Questions : 6]

SEAT No. :

P2261

[Total No. of Pages : 1

[4675]-23

M.C.A. (Management Faculty)

IT - 23 : SOFTWARE ENGINEERING

(2008 Pattern) (Semester - II)

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

Instructions to the candidates:

1) *Q. 1 and 6 are compulsory.*
2) *Attempt any three from the remaining.*

Q1) The ABC institute wants to computerize its Course Management System. The institute offers various courses. Each course is made up of set of subjects. Teachers in the institute are assigned the courses and the subjects according to the area of their specialization. Each course has a co-ordinator who manages the course contents, assigns subject to the teacher, schedules the lectures and examination.

You are required to study the system and

a) Draw context level and first level DFD. **[10]**

b) Prepare the SRS (scope, objective, function/non functional requirements, system specification) for the same. **[10]**

Q2) Explain decision tree, decision table with proper examples. **[10]**

Q3) Describe the phases of SDLC in detail. **[10]**

Q4) Explain method of estimating software maintenance cost. Give various components of legacy systems. **[10]**

Q5) Explain the role of CASE tools throughout the software development life cycle along with its advantages. **[10]**

Q6) Write Short Note: (any four): **[4 × 5 = 20]**

a) Spiral Models.

b) Reverse engineering.

c) Code Design.

d) Types of Documentation.

e) Agile Process.

☛ ☛ ☛

Total No. of Questions : 6]

SEAT No. :

P2262

[Total No. of Pages : 1

[4675] - 24
M.C.A. (Management Faculty)
BM - 21 : 204 : SOFT SKILLS
(2008 Pattern) (Semester - II)

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

Instructions to the candidates:

1) ***Q.No. 1 is compulsory.***
2) ***Attempt any three questions from remaining questions.***

Q1) a) What do you mean two way communication. **[10]**

b) What is body language? Importance in inter personal communication of body language. **[15]**

Q2) Explain written communication plays important role in organisation. **[15]**

Q3) What is report writing? Explain good qualities of business report writing. **[15]**

Q4) What are the advantages and limitations of e-mail? Importance of e-mail in business. **[15]**

Q5) Explain the role of communication in an organisation and its purpose. **[15]**

Q6) Short notes (Write any three): **[15]**

a) Business communication.

b) ABC rule of communication.

c) Self - esteem.

d) Notice of meeting.

✦ ✦ ✦ ✦

Total No. of Questions : 6]

SEAT No. :

P2263

[Total No. of Pages : 3

[4675] - 25

M.C.A. (Management Faculty)

MT-21:205- PROBABILITY & COMBINATORICS

(2008 Pattern) (Semester - II)

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

Instructions to the candidates:

1) ***Q.No.1 and Q.No. 4 are compulsory.***
2) ***Solve any one from Question Nos. 2 and 3. And solve any one from Question Nos. 5 and 6.***
3) ***Use of statistical table and non programmable calculator is allowed.***
4) ***Figures to the right indicate full marks.***

Q1) a) State and prove generalized principle of Inclusion and Exclusion. **[5]**

b) Find the number of integer valued solutions of the following equation. **[5]**

$x_1 + x_2 + x_3 = 34 \quad x_1 > 3, x_2 \geq 2, x_3 \geq 2$

c) Solve the following Recurrence relation **[5]**

$a_r - 7a_{r-1} + 10\, a_{r-2} = 0,$ given that $a_0 = 0$, $a_1 = 3$.

d) Find the coefficient of $x^2y^4z^3$ in the expansion of $\left(7x + 3y^2 + 3z\right)^7$. **[5]**

Q2) a) Using combinatorial argument prove the following binomial identities. **[8]**

i) $\binom{n}{0} + \binom{n}{2} + ... = \binom{n}{1} + \binom{n}{3} + ...$

ii) $\binom{2n}{2} = 2\binom{n}{2} + n^2$

b) How many integers between 999 and 9999 either divisible by 2 or 5? **[7]**

P.T.O.

Q3) a) Determine the Discrete Numeric Function corresponding to generating function $\frac{z^5}{1-6z+z^2}$. **[8]**

b) If 4 Americans, 3 Frenchman and 3 Indians are to be seated for dinner. How many ways they can sit on circular table if: **[7]**

i) There is no restriction

ii) Same nationality must sit next to each other?

Q4) a) Derive probability mass function of Binomial random variable. **[6]**

b) Calculate mean and Variance of Poisson random variable X. **[7]**

c) A two dimensional r.v. (X,Y) have a bivariate distribution given by $P(X=x, Y=y)=\frac{x^2+y}{32}$, for $x=0,1,2,3$ & $y=0,1$. Find marginal distributions of X and Y conditional distribution of Y given X = 2. **[7]**

Q5) a) A factory produces a certain type of outputs by three types of machine. The respective daily production figures are: Machine I-3000 units, Machine II-2500 units and Machine III-4500 units. Past experience show that 1% of the output produced by Machine I is defective, and corresponding fraction of defectives for the other two machines are 1.2% and 2% respectively.

An item is drawn at random from the day's production run and is found to be defective. What is the probability that it comes from the output of machine I. State the theorem used to solve above problem. **[8]**

b) If the M.G.F. of random variable X is given by $M_X(t)=\frac{2}{2-t}$ obtain the standard deviation of X. **[7]**

Q6) a) Joint probability distribution of two dimensional random variable (X,Y) is given below. **[8]**

X \ Y	0	1	2	3
0	0.05	0.10	0.15	0.05
1	0.08	0.09	0.15	0.03
2	0.05	0.09	0.03	0.03
3	0.03	0.03	0.02	0.02

Find:

i) Marginal distributions of X and Y.

ii) Conditional distributions of X given Y = 2.

iii) P [Y>X].

b) Prove that Poisson distribution is limiting case of Binomial distribution. **[7]**

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Total No. of Questions : 7]

SEAT No. :

P2298

[Total No. of Pages : 2

[4675] - 301
M.C.A. (Management Faculty)
IT-31: WEB TECHNOLOGIES
(2012 Pattern) (Semester - III)

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

Instructions to the candidates:

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

Q1) a) Explain configuration file and creation of SSL certificate. **[10]**

b) Explain DOM and SAX parser with examples. **[10]**

Q2) Design an application form for conference registration on entitled "IT in Academics" and validate the form using Javascript. (login, password, name, date-of - birth, e mail). **[10]**

Q3) Explain properties of CSS. **[10]**

a) List

b) Text

c) Margin

Q4) Write steps to create basic plugin in Jquery. Using javascript and its implementation in HTML. **[10]**

Q5) Explain chaining, Getters and setters in Jquery with examples. **[10]**

Q6) a) Explain N-tier architecture. **[5]**

b) and tag. **[5]**

P.T.O.

Q7) Write short notes on (any 2) **[5×2 = 10]**

a) DTD attribute types.

b) Virtual hosting.

c) Event handling in JavaScript.

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Total No. of Questions : 7]

SEAT No. :

P2299

[Total No. of Pages : 2

[4675] - 302

M.C.A. (Management Faculty)

IT-32: DATA COMMUNICATION AND COMPUTER NETWORKS

(2012& 2013 Pattern) (Semester - III)

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

Instructions to the candidates:

1) ***Q.1 and Q.7 are compulsory.***
2) ***Attempt any Three from remaining.***
3) ***Neat diagrams must be drawn wherever necessary.***
4) ***Figures to the right side indicate full marks.***

Q1) a) Justify with True or False (not more than 60 words) **[10]**

i) The switch-based Ethernet eliminates collisions.

ii) If a parity setting is even then the sum of all the characters bits plus the parity bit should be equal to an odd number.

iii) The OSPF protocol is link state route discovery protocol.

iv) The Packet-switching method provide dedicated communication channel between two stations.

v) The more Host addresses allocated for, the fewer Network Address available.

b) Generate CRC code for the data word 1010001011 using the divisor 11101. **[10]**

Q2) Define the subnet mask to be used in Class -B addressing to support 30 subnets and also find the most hosts possible in each subnet. **[10]**

Q3) Define HTTP. What are the features of HTTP. What are the different types of HTTP Request? Explain each of them. **[10]**

P.T.O.

Q4) What are the options of DHCP? What are the advantages of DHCP? List and explain the characteristics of DHCP. **[10]**

Q5) Explain with example the funcitons of SMTP and POP. What are the advantages of IMAP? **[10]**

Q6) Define and explain Symmetric key Cryptography? Why Digital signature is used. **[10]**

Q7) Write short notes (Any Four) **[20]**

a) Wireless LAN.

b) Loop-back addressing.

c) Addressing scheme of IPv6.

d) Telnet.

e) IEEE 802.11.

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Total No. of Questions : 7]

SEAT No. :

P2300

[Total No. of Pages : 2

[4675] - 303
M.C.A. (Management Faculty)
IT-33: DATA STRUCTURE USING C++
(2012 Pattern) (Semester - III)

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

Instructions to the candidates:

1) ***Questions 1 is compulsory.***
2) ***Solve any four questions from Q.2 to Q.7.***

Q1) a) An integer array is defined as × [250] [400] find the address of cell ×[90][30]. **[5]**

b) Construct a Binary tree from the given traversals **[5]**

Preorder: A B D G H E I C F J K

Inorder: G D H B E I A C J F K

Q2) a) Write a C++ program for addition of sparse matrices. **[7]**

b) Show the AVL tree construction for the following. **[8]**

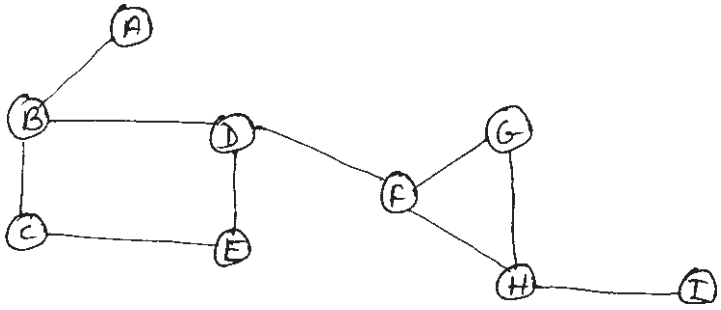
MAR, MAY, NOV, AUG, APR, JAN, DEC, JUL, FEB, JUN, OCT, SEP.

Q3) a) Convert the following expression to prefix expression. Show the contents of the stack at each step.

A* (B + C –D) *E/F *G. **[7]**

b) Write a C++ program to reverse a singly linked list. **[8]**

Q4) a) Generate DFS, BFS for the Node A. Write the adjacency matrix and adjacency list for the following graph. **[8]**



P.T.O.

b) Write a C++ function to insert a node at a given position in a circular linked list. **[7]**

Q5) a) Write a C++ function for non recursive preorder traversal of a binary tree. **[8]**

b) Write a program to implement a circular queue. **[7]**

Q6) a) Write a program for multiplication of polynomials. **[7]**

b) Write the following C++ function for AVL trees. **[8]**

i) Right Left Rotation

ii) Left Right Rotation

Q7) a) Write a C++ function for merging two sorted linked lists. **[7]**

b) Build a B-tree of order 5 for the following. **[8]**

10, 70, 60, 20, 110, 40, 80, 130, 100, 50, 190, 90, 180, 240, 30.

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Total No. of Questions : 7]

SEAT No. :

P2301

[Total No. of Pages : 1

[4675]-304

M.C.A. (Management Faculty)

IT - 34 : ADVANCE DATABASE MANAGEMENT SYSTEM

(2012 & 2013 Pattern) (Semester - III)

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

Instructions to the candidates:

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

Q1) a) What do you understand by OODBMS? Explain the features of OODBMS. **[10]**

b) Explain different schema in dimentional data modeling. **[10]**

Q2) Explain I/O parallelism? Define Parallelism on Multicore processor. **[10]**

Q3) Explain concurrency control in Distributed Database. **[10]**

Q4) What is anociation Rule? Explain with example frequent-pattern tree algorithm. **[10]**

Q5) What are the various application of XML? Explain XML Parsers. **[10]**

Q6) Explain multimedia Architecture? Mentioned the requirement for mobile database. **[10]**

Q7) Write short notes (Any 2): **[10]**

a) Cloud Band Server.

b) SOAP.

c) Data-visualization.

d) OLAP.

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Total No. of Questions : 8]

SEAT No. :

P2264

[Total No. of Pages : 2

[4675] - 31
M.C.A. (Management Faculty)
IT-31:WEB TECHNOLOGIES
(2008 Pattern) (Semester - III)

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

Instructions to the candidates:

1) ***Q.No.1 and Q.No. 8 are compulsory.***
2) ***Solve any five from Q.2 to Q.7.***
3) ***Draw neat diagrams wherever necessary.***

Q1) Write DTD program for online information submission to voter card application (Take 7 elements) **[10]**

a) Looking at DTD create XML file.

b) Apply CSS to XML file.

Q2) Explain event handling in Javascript with examples. **[10]**

Q3) Write ASP program to fill on-line form for Car insurance with suitable fields and insert into database. **[10]**

Q4) Explain Date and Array objects with examples in VBscript. **[10]**

Q5) Explain following tags: **[10]**

a) <IFRAME>

b) <DIV>

c) <META>

d) <SPAN>

Q6) Explain CSS and its different types with examples. **[10]**

P.T.O.

Q7) Design HTML form for Fixed deposit scheme, Take suitable fields using Javascript. **[10]**

Q8) Write short notes (Any Two) **[10]**

a) Global asa.

b) SOAP.

c) Three tier architecture.

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Total No. of Questions : 7]

SEAT No. :

P2265

[Total No. of Pages : 2

[4675] - 32

M.C.A. (Management Faculty)

IT - 32 : DATA COMMUNICATION AND COMPUTER NETWORKS

(2008 Pattern) (Semester - III)

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

Instructions to the candidates:

1) ***Q.1 and Q.7 are compulsory.***
2) ***Attempt any Three from remaining.***
3) ***Neat diagrams must be drawn wherever necessary..***
4) ***Figures to the right side indicate full marks.***

Q1) a) Justify with True or False (not more than 60 words). **[10]**

i) In OSI network Architecture the dialogue Control and Token Management are responsibilities of Session Layer.

ii) To connect LAN's with different protocols a translating bridge can be used.

iii) Firewalls operate in one of two filtering modes: Deny all or pass all.

iv) RIP is a dynamic distance vector method based on Hop counts.

v) Sequencing is provided in virtual circuit approach, since all packets follow the different route.

b) Define HTTP. What are the features of HTTP, What are the different types of HTTP Request? Explain each of them. **[10]**

Q2) a) Find the maximum number of hosts available on a class-B address with a subnet mask of 255.2555.255.192.

b) Find the subnet ID for the IP address 202.127.19.94 with a subnet mask of 255.255.255.248. **[10]**

P.T.O.

Q3) Describe the meaning and purpose of DNS. Explain Name resolution and inverse resolution. Define 'Partially Qualified' and 'Fully Qualified'. **[10]**

Q4) What are the purpose of ARP, RARP, ICMP and IGMP of IP layer? Explain each of them. **[10]**

Q5) Define threat and attacks. Explain active attack and passive attack. Why Digital Signature is used? **[10]**

Q6) What is MIME? Explain its purpose and format in detail. **[10]**

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

a) Topologies.

b) X.25

c) LAN access techniques.

d) VSAT.

e) IP routing.

f) SNMP.

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Total No. of Questions : 8]

SEAT No. :

P2266

[Total No. of Pages : 6

[4675]-33

M.C.A. (Management Faculty)

IT - 33 : Object Oriented Programming Using C++

(2008 Pattern) (Semester - III)

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

Instructions to the candidates:

1) ***Question 1 is compulsory.***
2) ***Solve any six from Q.2 to Q.8.***

Q1) What will be the output of the following program? **[10]**

a)

```
#include<iostream.h>
#include<string.h>
class A
    {
        char *str;
        public:
        void set (char *s)
        {
                strcpy(str, s);
        }
        static void show( )
        {
                cout<<str;
        }
    };
    void main ( )
    {
    A obj;
    obj.set("Hello");
    A : : show( );
    }
```

P.T.O.

b)
```
#include<iostream.h>
void main( )
{
        cout.setf(ios::left);
        cout.width(9);
        cout.fill('#');
        cout.precision(5);
        cout<<-5.25;
        cout<<endl;
        cout.setf(ios::right, ios::adjustfield);
        cout.width(9);
        cout.fill('*');
        cout.precision(7);
        cout<<10.25;
}
```

c)
```
#include<iostream.h>
class A
{
        int x;
        public:
                void setA(int x)
                        {
                                this->x=x;
                        }
                        void putA( )
                        {
                                cout<<x;
                        }
};
class B : protected A
{
                int y;
                public:
```

```
                    void setB(int y)
                    {
                        this->y=y;
                    }
                    void putB( )
                    {
                        cout<<y;
                    }
};
void main ( )
{
    B obj;
    obj.setA(10);
    obj.putB( );
}
```

d)
```
#include<iostream.h>
class base
{
    private:        int i;
};
class derived : public base
{
    int j;
};
void main( )
{
    cout<<sizeof(derived)<<endl<<sizeof(base);
    base bobj;
```

```
        derived dobj;
        cout<<endl<<sizeof(dobj)<<endl<<sizeof(bobj);
    }
```

e)
```
    #include<iostrem.h>
    class A
    {
    public:
    virtual void show( )
    {
        cout<<"I am in show A";
    }
    void display( )
    {
        cout<<"I am in display A";
    }
    };
    class B : public A
    {
        public:
    void show( )
    {
        cout<<"I am in show B";
    }
    };
    class C : public A
    {
        public:
        void display( )
        {
            cout<<"Iam in display c"
```

```
}
};
void main( )
{
    A *aa=new B( );
    aa->show( );
    aa=new C( );
    aa-> display( );
}
```

Q2) a) Write a function template to calculate area of circle. **[5]**

b) Explain any five manipulators with suitable example. **[5]**

Q3) Write a program to create Template class circular queue to implement insertion and deletion operation. **[10]**

Q4) a) Write a program to accept a string and throw "Too Few Vowels Exception" if the string contain less than 3 vowels. **[5]**

b) What is STL? Explain different container classes. **[5]**

Q5) Write a program to overload [] and != operators. **[10]**

Q6) Write a program to read the records from "Bank.txt" file and delete records of customers whose balance is less than 1000. **[10]**

Q7) Define a class to represent Library information include student information & book information. **[10]**

Student Information includes:

Data members: student id, name, course

Member function:

a) Get Student data

b) Display student data

Book Information includes:

Data Members: Book id, book name, price

Member function:

a) Get Book data

b) Display Book data

Library Information Includes:

Data Member: book issue day, book return day, fine

Member Function:

Calculate fine who exceeds limit of return days

Q8) Write short notes on the following: (Any TWO): **[10]**

a) Exception Handling Mechanism.

b) New Style Cast.

c) Standard Template Library.

d) RTTI.

Total No. of Questions : 7]

SEAT No. :

P2267

[Total No. of Pages : 1

[4675]-34

M.C.A. (Management)

IT - 34 : ADVANCED DATABASE MANAGEMENT SYSTEMS

(New) (2008 Pattern) (Semester - III)

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

Instructions to the candidates:

1) ***Question No. 7 is compulsory.***
2) ***Solve any five questions from 1 to 6.***
3) ***Figures to the right indicate full marks.***

Q1) Discuss OODBMS, ORDBMS, RDBMS. **[10]**

Q2) Explain concurrency control and deadlock handling in distributed DBMS. **[10]**

Q3) Explain the characteristics of a Data warehouse & its architecture in detail. **[10]**

Q4) What do you mean by Inter-Query & Intra-query parallelism? **[10]**

Q5) What is OLAP? Discuss the types of OLAP servers. **[10]**

Q6) Discuss Apriori algorithm. **[10]**

Q7) Write short Notes any four: **[20]**

a) Snowflake Schema.
b) Spatial databases.
c) Data mart.
d) DTD.
e) Outlier analysis

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Total No. of Questions : 8]

SEAT No. :

P2303

[Total No. of Pages : 2

[4675]-401
M.C.A (Management Faculty)
IT - 41 : JAVA PROGRAMMING
(2012 Pattern) (Semester-IV)

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

Instructions to the candidates:

1) ***Q. No. 1 is compulsory.***
2) ***Solve any six from remaining.***

Q1) Solve the following: **[10]**

a) What is garbage collection?

b) List out any four methods of Hash Map class.

c) What is difference between abstract and final keyword?

d) Which methods are used for interthread communication?

e) What is port?

Q2) Write JDBC application that will accept name of constituency. List signs and names of candidates who got party tickets from given constituency. [Assume suitable table structure]. **[10]**

Q3) Write Java application to demonstrate add, replace, delete, copy objects in linked list. **[10]**

Q4) Write socket application to do following. Client will accept file name from user and send to server. Server will check it file present and send contents of file in reverse order to client as a single response. Client will display response sent by server. **[10]**

P.T.O.

Q5) Write an applet to display scrolling text left to right in window. Using thread. Accept text as parameter. **[10]**

Q6) Write RMI application to calculate simple interest. Accept amount, rate and tenure from user. **[10]**

Q7) Explain types of exception with example. **[10]**

Q8) Write notes on (Any Two): **[10]**

a) Rules for writing Java bean class.

b) Event delegation model.

c) JDBC drivers.

●●●●●

Total No. of Questions : 7]

SEAT No. :

P2305

[Total No. of Pages : 1

[4675] -403

M.C.A. (Management Faculty)

IT -43: INFORMATION SECURITY AND AUDIT

(2012 Pattern) (Semester - IV)

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

Instructions to the candidates:

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

Q1) User receives a mail with an URL for winning a prize of Rs. 1 lack. User has to register and enter details of bank account. Discuss security related issues. **[10]**

Q2) Explain ISMS in detail. **[10]**

Q3) What are the cyber-crimes and attacks? **[10]**

Q4) Explain policy design life cycle. **[10]**

Q5) Explain IT-governance framework in detail. **[10]**

Q6) Explain auditing techniques and methodologies. **[10]**

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

a) Windows password auditor.

b) E-mail security.

c) BCP

d) Logical and physical access controls.

e) Ethical hacking.

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Total No. of Questions : 5]

SEAT No. :

P2306

[Total No. of Pages : 4

[4675] - 404
M.C.A. (Faculty of Management)
MT - 41 : OPTIMIZATION TECHNIQUES
(2012 Pattern) (Semester - IV)

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

Instructions to the candidates:

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

SECTION - I

Q1) a) The cost in Rs. of transportation of each unit from various warehouses to different markets is given below: Find optimum solution? **[7]**

		Markets			
		A	B	C	D
Warehouses	X	12	18	6	15
	Y	8	7	10	18
	Z	14	6	11	16

The capacity of warehouse are 200,500,300 for X,Y,Z respectively and demand for markets A,B,C,D are 180.320,100 and 400 respectively.

P.T.O.

b) A project consists of nine activities whose time estimates and others characteristics are given below: **[7]**

Activity	Preceding Activity	Time estimates (in weeks)		
		Optimistic	Most likely	Pessimistic
A	------	2	4	6
B	------	6	6	6
C	------	6	12	24
D	A	2	5	8
E	A	11	14	23
F	B,D	8	10	12
G	B,D	3	6	9
H	C,F	9	15	27
I	E	4	10	16

i) Draw the network diagram and find the critical path?

ii) Find project completion time and project variance?

iii) A penalty of Rs 15,000 per week is to be imposed on the contractor if the project is not completed in 36 weeks. What is the probability that he has to pay penalty of Rs 45,000?

c) A repairman is to be hired by a company to repair machines that breakdown following poison process with an average rate of four per hour. The cost of non-productive machine time is Rs. 90 per hour. The company has an option of choosing either a fast or a slow repairman. The fast repairman charges Rs. 70 per hour will repair machines at an average rate of 7 per hour, while the slow repairman charges Rs. 50 per hour and will repair machines at an average rate of 6 per hour. Which repairman should be hired? **[7]**

d) A large computer installation contains 2000 components of identical nature which are subject to failure as per probability distribution that follows:

Month ends	1	2	3	4	5
% failure to date	10	25	50	80	100

Components which fail have to be replaced immediately for efficient working. If they are replaced individually, the cost is Rs. 45. If the items are replaced in a lot the cost per item will be Rs. 15. Find which policy of replacement should be adopted and why? **[7]**

Q2) a) Solve the following LPP by using two phase simplex method. **[7]**

Min $Z = 40x_1 + 24x_2$

Subject to $20x_1 + 50x_2 \geq 4800$

$80x_1 + 50x_2 \geq 7200$

$x_1, x_2 \geq 0$

b) A company has categorized its investments proposals into seven types. The financial analysts are needed to analyse the risk and return characteristic of these types. The time that the analyst and the committee take is based on the size of the project. If it is required to minimize the time taken in evaluating these proposals, how should they be scheduled? The time required in hours is as below: **[7]**

Investment	A	B	C	D	E	F	G
Analysis	8	5	10	8	14	10	7
Evaluation	3	3	7	4	8	6	5

What is total completion time required for analysis and evaluation?

Q3) a) The purchase manager of Sigma company is contacted by a new supplier who offers a quantity discount on an item KR - 100 being used by the company. The ordering cost is Rs. 80 per order holding cost is 25% of the average inventory value on a yearly basis. The annual demand for this item is 40,000 units at a constant daily rate. The price of an item is Rs. 80 and the supplier offers the discount of Rs. 4 per unit if the company places an order for at least 2000 units of the items at a time. Should the manager take benefit of discount and why? **[7]**

b) A fast food chain wants to build four stores say A, B, C and D. Six different construction companies were invited to bid on each job. Their quotation in thousand rupees was as shown in the following table. Each company will be assigned at most one store, find the optimum assignment? **[7]**

		Construction companies					
		1	2	3	4	5	6
Store	A	85.3	88	87.5	82.4	89.1	86.7
	B	78.9	77.4	77.4	76.5	79.3	78.3
	C	82	81.3	82.4	80.6	83.5	81.7
	D	84.3	84.6	86.2	83.3	84.4	85.5

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

i) Critical path.

ii) Unbalanced transportation problem.

iii) Group replacement.

iv) EOQ.

v) Slack variable.

vi) Cost slope of an activity.

vii) Holding cost.

b) Solve the following LPP: **[7]**

Max $Z = 2x_1 + 4x_2$

Subject to $2x_1 + x_2 \leq 18$

$3x_1 + 2x_2 \geq 30$

$x_1 + 2x_2 = 26$

$x_1 , x_2 \geq 0$

Q5) a) The data for the project are **[7]**

Activity	Preceding activity	Time (in weeks)		Cost (in Rs.)	
		Normal	Crash	Normal	Crash
A	------	3	2	18000	19000
B	------	8	6	600	1000
C	B	6	4	10000	12000
D	B	5	2	4000	10000
E	A	13	10	3000	9000
F	A	4	4	15000	15000
G	F	2	1	1200	1400
H	C,E,G	6	4	3500	4500
I	F	2	1	7000	8000

i) Draw the network diagram and find the critical path?

ii) If in direct cost is 700 Rs./week find the optimal duration and the cost associated with it?

b) Write the notes on Characteristic of queuing theory? **[7]**

Total No. of Questions : 8]

SEAT No. :

P2307

[Total No. of Pages : 2

[4675] - 405

M.C.A. (Management Faculty)

IT-44: DESIGN AND ANALYSIS OF ALGORITHM

(2012 Pattern) (Semester - IV)

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

Instructions to the candidates:

1) ***Question 1 and 8 are compulsory.***
2) ***Solve any FIVE questions from Q2 to Q7.***
3) ***Figures to the right indicate full marks.***

Q1) a) Define an algorithm. State and explain pseudo code conventions for analyzing different algorithms. **[5]**

b) Differentiate between the Divide and Conquer strategy and Greedy approach of the problem solving. **[5]**

Q2) Design an algorithm for job sequencing with deadlines problem using greedy method. Obtain the optimal job sequence for following data of jobs.

N = 5, $(P_1, P_2, P_3, P_4, P_5) = (25,15,12,5,1)$ and $(D_1, D_2, D_3, D_4, D_5) = (3,2,1,3,3)$. **[10]**

Q3) What are the characteristics of divide and conquer method? Discuss Merge sort algorithm with its complexity. Assume suitable data. **[10]**

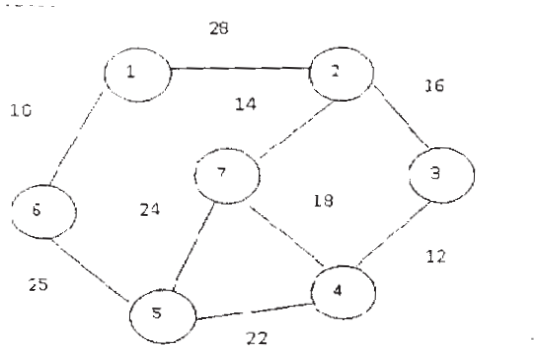
Q4) Write an algorithm for Flow-shop scheduling using dynamic programming approach. **[10]**

Q5) Write an algorithm for Bucket sort. Trace it with following data. Also state its time complexity.

{0.78, 0.17, 0.39, 0.26, 0.72, 0.94, 0.21, 0.12, 0.23, 0.68}. **[10]**

P.T.O.

Q6) Define Minimum spanning tree. Write Kruskal's algorithm for finding MST for following graph. **[10]**



Q7) Write and analyze the recursive Tower of Hanoi algorithm with n = 3. **[10]**

Q8) Write short note on any two of the following. **[10]**

a) N-Queen's Problem.

b) Sets and Disjoint sets.

c) NP Complete and NP Hard Problems.

☼ ☼ ☼

Total No. of Questions : 8]

SEAT No. :

P2269

[Total No. of Pages : 2

[4675]-41
M.C.A. (Management Faculty)
IT - 41 : JAVA PROGRAMMING
(2008 Pattern) (Semester-IV)

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

Instructions to the candidates:

1) ***Q. No. 1 compulsory.***
2) ***Solve any six from remaining.***

Q1) Solve the following: **[10]**

a) What is Daemon Thread?

b) Explain unchecked exceptions.

c) What is Method Overriding.

d) Explain abstract class.

e) Explain file class.

Q2) Write JDBC application for robotics event registration (assume suitable stable structure). **[10]**

Q3) Write a Java Socket program. Client will accept two digit number & send to server. It will display response sent by server. Server will read number & send no. in words to client. **[10]**

Q4) Write a Java applet program to simulate running digital clock that displays time in HH : MM : SS format. **[10]**

Q5) a) What is late binding & early binding? **[5]**

b) What is anonymous class? Explain with example. **[5]**

P.T.O.

Q6) Write a Java program to append the content of one file to another. **[10]**

Q7) What is RMI explain with example. **[10]**

Q8) Short notes (Any Two): **[10]**

a) EJB architecture.

b) Layout Managers.

c) Applet life cycle.

●●●●●

Total No. of Questions : 7]

SEAT No. :

P2271

[Total No. of Pages : 2

[4675] -43

M.C.A. (Management Faculty)

IT -43: OBJECT ORIENTED ANALYSIS AND DESIGN

(2008 Pattern) (Semester - IV)

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

Instructions to the candidates:

1) ***Question no. 1 is compulsory.***
2) ***Solve any five questions from remaining.***
3) ***Mention the assumptions made for solving case study.***

Q1) University examination department wants to automate the paper setting process. The examination controller need to manage different activities (paper setting schedule for a term in which he will specify date, venue for paper setter) the teachers need to submit their details along with subject expertise. Based on subject expertise, exam controller will generate appointment orders for paper setting. Each paper setting panel will consist of a chairman and members (min-3& max - 7). Each panel need to set 3 papers for a subject and submitt it to exam section. A paper setter can be there in many panels. Chairman needs to set the paper online and upload it on paper setting portal of university. Through proper login (authentic).

a) Draw the use case diagram. **[10]**

b) Draw the class diagram. **[10]**

Q2) Why object orientation is required? Explain the characteristics of object oriented programming. **[10]**

Q3) Explain the RUP in detail. **[10]**

Q4) What is activity diagram? Explain it with proper example. **[10]**

P.T.O.

Q5) a) Draw sequence diagram for online gas booking. **[5]**

b) Draw state chart diagram for an Elevator. **[5]**

Q6) Explain or write the difference between sequence diagram and collaboration diagram. **[10]**

Q7) Write short notes on any four. **[10]**

a) Class diagram notations.

b) OOAD.

c) Deployment diagram.

d) Patterns.

e) Testing strategies.

f) Design Refinement.

☼ ☼ ☼

Total No. of Questions : 4]

SEAT No. :

P2272

[Total No. of Pages : 4

[4675] - 44
M.C.A. (Management Faculty)
MT - 41 : OPTIMIZATION TECHNIQUES
(2008 Pattern) (Semester - IV)

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

Instructions to the candidates:

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

Q1) a) The following information regarding a project is given **[9]**

Activity	Immediate Predecessor	Time in days		
		Most Optimistic	Most Likely	Most Pessimistic
A	-	4	6	8
B	A	5	7	15
C	A	4	8	12
D	B	15	20	25
E	B	10	18	26
F	C	8	9	16
G	E	4	8	12
H	D,F	1	2	3
I	G,H	6	7	8

i) Construct an arrow diagram for this problem.

ii) Determine the critical path and compute the expected completion time.

iii) Determine the probability of completing the project in 55 days.

P.T.O.

b) Solve the following Integer Programming Problem: **[9]**

Max : $Z = 2x_1 + 20x_2 - 10x_3$

Subject to :

$2x_1 + 20x_2 + 4x_3 \leq 15$

$6x_1 + 20x_2 + 4x_3 = 20$

$x_1, x_2, x_3 \geq 0$ and integers

c) In a Bank, handled by one teller, customers arrive at the rate of 15 in an hour. The teller takes 2 minutes to handle a customer. Find: **[6]**

i) The probability that the teller is busy.

ii) Expected number of customers waiting in the bank.

iii) The average time spent by the customer in the bank waiting for their turn.

d) A small garment making unit has five tailors stitching five different types of garments. All the five tailors are capable of stitching all the five types of garments. The output per day per tailor for each type of garment is given below: **[6]**

Tailors \ Garments	1	2	3	4	5
A	7	9	4	8	6
B	4	9	5	7	8
C	8	5	2	9	8
D	6	5	8	10	10
E	7	8	10	9	9

Determine which types of garment should be assigned to which tailor in order to optimize production?

Q2) a) Solve the Transportation Problem: **[9]**

Origins \ Destinations	D_1	D_2	D_3	D_4	Supply
O_1	40	25	33	22	100
O_2	44	35	30	30	30
O_3	38	38	30	28	70
Demand	40	20	30	50	

b) The following mortality rates have been observed for a certain type of light bulbs. **[6]**

Week:	1	2	3	4	5
Percent of failing at end of week :	10	25	50	80	100

There are 1000 such bulbs in use and it costs Rs. 2 to replace an individual bulb which has burnt out. If all the bulbs were replaced simultaneously it would cost 50 paise per bulb. What policy the maintenance manger should follow between individual replacement policy and group replacement policy, if group policy is adopted, at what interval of time he should replace all bulbs.

c) Draw the network diagram for the following data: **[5]**

Activities	A	B	C	D	E	F	G	H	I	J	K
Immediate Predecessor	-	-	A	A	I,J,K	B,D	B,D	F	A	G,H	F

Q3) a) Solve the following LPP by Big M method: **[9]**

Min $Z = 4x_1 + 3x_2 + 9x_3$

Subject to $2x_1 + 4x_2 + 6x_3 \geq 15$

$6x_1 + 1x_2 + 6x_3 \geq 12$

$x_1, x_2, x_3 \geq 0$

b) 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. **[6]**

Find :

i) The Optimum Lot Size

ii) The time interval between the orders

iii) Minimum yearly total cost.

c) Explain the terms: **[5]**

i) Optimistic Time

ii) Slack

iii) Unbounded Solution

iv) Unbalanced Transportation Problem

v) Alternate Optimum Solution.

Q4) a) The following time-cost table (time in Weeks and cost in Rupees) applies to a project. Use it to arrive at the network associated with completing the project in minimum time with minimum cost. **[9]**

Activity	Normal		Crash	
	Time	Cost	Time	Cost
1-2	2	800	1	1400
1-3	5	1000	2	2000
1-4	5	1000	3	1800
2-4	1	500	1	500
2-5	5	1500	3	2100
3-4	4	2000	3	3000
3-5	6	1200	4	1600
4-5	5	900	3	1600

Indirect cost per week is Rs. 500.

b) Express the following Assignment Problem as LPP: **[6]**

	A	B	C	D	E
I	3	8	5	3	8
II	2	4	4	6	8
III	3	3	5	7	4
IV	5	4	2	2	7
V	8	1	8	5	3

c) Describe the various characteristics of the queuing system. **[5]**

Total No. of Questions 7]

SEAT No. :

P2273

[Total No. of Pages :1

[4675]-45
M.C.A.
BME-1- 414:(Management Elective)
MIS FRAMEWORK & IMPLEMENTATION
(2008 Pattern) (Semester- IV)

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

Instructions to the candidates:

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

Q1) Design and discuss a MIS framework for e-learning applications. **[10]**

Q2) How Information Technology charging the way production function in organization is performed? **[10]**

Q3) Elaborate different benefits of IT application can provide through office automation. **[10]**

Q4) Explain the different threats to IT infrastructure. **[10]**

Q5) Discuss role of DSS to gain compatitive advantage in volatile scenario in businesses. **[10]**

Q6) Explain various socio-economic issues associated with implementation of online Banking. **[10]**

Q7) Write short notes on (any four): **[4x5=20]**

a) EIS

b) Critical success factor in Implementing IT applications.

c) Objectives of security policy.

d) Group Decision support system.

e) Expert system.

EEE

Total No. of Questions 9]

SEAT No. :

P2274

[Total No. of Pages :3

[4675]-46

M.C.A. (Management Faculty)

BM-E1:Management Elective

FOUNDATION OF DECISION PROCESSES

(2008 Pattern) (Semester- IV)

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

Instructions to the candidates:

1) ***Attempt any SEVEN from the following.***
2) ***Use of non-programmable calculators is allowed.***
3) ***Figures to the right indicate full marks.***

Q1) Explain the steady state Markov process with example. **[10]**

Q2) A retailer purchases strawberries every morning at Rs.50 a case and sells them for Rs.80 a case. Any case remaining unsold at the end of the day can be disposed off next day at a salvage value of Rs.20 per case (thereafter they have no value). Past sales have ranged from 15 to 18 cases per day. The following is the record of sales for the past 120 days. **[10]**

Cases sold	15	16	17	18
No. of Days	12	24	48	36

Find how many cases the retailer should purchase per day to maximize his profit.

Q3) Explain the various decision making criteria with illustrations. **[10]**

Q4) Explain the various Models of Queuing system. **[10]**

Q5) A television repairman finds that the time spent on his jobs has an exponential distribution with a mean of 30 minutes. If he repairs the sets in the order in which they came in, and if the arrival of sets follows a Poisson distribution with an approximate average rate of 10 per 8 hour day, what is the repairman's expected idle time each day? How many jobs are ahead of the average set just brought in? **[10]**

P.T.O.

Q6) A management is faced with a problem of choosing one of three products for manufacturing. The potential demand for each product may turn out to be good, moderate or poor. The probabilities for each of the states of nature were estimated as follows: **[10]**

Product	Nature of Demand		
	Good	Moderate	Poor
X	0.70	0.20	0.10
Y	0.50	0.30	0.20
Z	0.40	0.50	0.10

The estimated profit or loss in Rs. Under the three states may be taken as:

Product	Good	Moderate	Poor
X	30000	20000	10000
Y	60000	30000	20000
Z	40000	10000	-15000

Prepare the expected value table and advise the management about the choice of the product.

Q7) Solve the game whose pay-off matrix is given below: **[10]**

		Player B			
		B_1	B_2	B_3	B_4
Player A	A_1	3	2	4	0
	A_2	3	4	2	4
	A_3	4	2	4	0
	A_4	0	4	0	8

Q8) Explain the dominance rules in Game with proper example. **[10]**

Q9) A bakery keeps stock of a popular brand of cakes. Previous experience shows the daily demand pattern for the cakes with associated probabilities as given below: **[10]**

Daily demand (Units)	0	10	20	30	40	50
Probability	0.01	0.20	0.15	0.50	0.12	0.02

Use the following sequence of random numbers to estimate demand for next 10 days. Also find average demand per day.

25 39 65 76 12 5 73 89 19 49

EEE

Total No. of Questions 6]

SEAT No. :

P2275

[Total No. of Pages :1

[4675]-47
M.C.A. (Mgt)
BME - 1: management Elective
INFORMATION SYSTEM AUDIT AND GOVERNANCE
(2008 Pattern) (Semester- IV)

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

Instructions to the candidates:

1) ***Q.1 and Q.6 are compulsory.***
2) ***Solve any three form Q.2 to Q.5.***
3) ***Figures to the right side indicate full marks.***

Q1) Pune Municipal Corporation wants to implement online transaction system for all types of taxes. Explain physical and logical controls for security issues. As an IT auditor find out the possible threats and input controls for the system. **[20]**

Q2) Explain in detail the risk involved in IT system company. **[10]**

Q3) Explain the role of DA and DBA in auditing. **[10]**

Q4) Explain BCP architecture in detail. **[10]**

Q5) What is E - govenrnance? **[10]**

Q6) Short notes (any two): **[20]**

a) Audit standards.

b) Internet Security.

c) Prototyping.

d) IT crimes.

e) HR policies.

EEE

Total No. of Questions 7]

SEAT No. :

P2276

[Total No. of Pages :1

[4675]-48
M.C.A.
BME-1: Management Elective
COLLABORATIVE MANAGEMENT
(2008 Pattern) (Semester- IV)

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

Instructions to the candidates:

1) ***Attempt any five questions.***
2) ***Support your answers with relevant examples.***
3) ***Figures to the right indicate full marks.***

Q1) "With BCG matrix, company is able to define its development policy". Elaborate with the help of suitable statement. **[14]**

Q2) a) What are the differences between Merger and acquisition? **[7]**

b) What are the basic problems of Merger and Acquisition in India? **[7]**

Q3) Discuss the following issues in strategy implementation: **[14]**

a) Structural issues.

b) Functional issues.

c) Behavioural issues.

Q4) "Environment of any organization can be considered as the aggregate of all conditions, events and influences that surround and affect it". Explain. **[14]**

Q5) What are five forces which affect industry structure according to Porter? **[14]**

Q6) Leadership style, corporate culture, values and ethics play a crucial role in effective implementation of strategy. Comment. **[14]**

Q7) Write short notes on any three: **[14]**

a) Differentiation Strategy.

b) SWOT Analysis.

c) Value chain.

d) Joint Venture.

e) Core competencies.

EEE

Total No. of Questions 7]

SEAT No. :

P2277

[Total No. of Pages :1

[4675]-49

M.C.A. (Management Faculty)

BME- 5: Elective - 415: DECISION SUPPORT SYSTEM

(2008 Pattern) (Semester- IV)

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

Instructions to the candidates:

1) ***Question.1 and 7 are compulsory.***
2) ***Answer any four question from remaining questions.***

Q1) Explain with help of examples how Data Mining can be helpful in identifying business opportunity to create sustainable competitive advantage. **[10]**

Q2) Explain importance of Artificial Intelligence and expert system in DSS. **[10]**

Q3) Discuss DSS technology levels and tools along with DSS development platform. **[10]**

Q4) Discuss the models of ES and DSS integration. **[10]**

Q5) Explain the database organization and structures used in DSS. **[10]**

Q6) Explain ESS with an example and enumerate ESS characteristics and capabilities. **[10]**

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

a) GIS

b) OLAP

c) MRP

d) DSS Implementation

e) SCM

EEE

Total No. of Questions :6]

SEAT No. :

P2278

[Total No. of Pages :1

[4675]-50
M.C.A. -II
BME - I :Management Elective
ENTERPRISE RESOURCE PLANNING
(2008 Pattern) (Semester - IV)

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

Instructions to the candidates:

1) ***Q. No. 1 & 6 are compulsory.***
2) ***Solve any three from Q.2 to 5.***
3) ***Figures to the right indicate full marks.***

Q1) 'Gajraj' packaged foods ' is a medium sized manufacturing organization. They have ' Implemented an ERP to support their expanding operations in Maharashtra and western India. Now after five years the management feels that they have not received expected outcomes. Major issues are with SCM& CRM departments. As an ERP consultant perform the post evaluation study and prepare a suggestive plan to improve the results. **[20]**

Q2) Discuss the critical success factors of ERP implementation in sales & distribution. QOS management & employee's performance evaluation modules. **[10]**

Q3) a) Explain ERP market and factors for selection of ERP package. **[5]**

b) Differentiate between executive support system and executive Information system. **[5]**

Q4) a) Explain the importance of data warehouse for ERP system. **[5]**

b) Explain the importance of component based ERP system. **[5]**

Q5) a) Explain the steps for end user training in an organization undergoing ERP implementation. **[5]**

b) Explain BPR and its significance in the design of ERP system. **[5]**

Q6) Write short notes on any four of the following: **[20]**

a) OLAP & OLTP

b) ERP vendors

c) Data mining

d) ERM

e) ERP market

EEE

Total No. of Questions : 6]

SEAT No. :

P2308

[Total No. of Pages : 1

[4675] - 501

M.C.A. (Management Faculty)

IT-51: SOFTWARE TESTING AND QUALITY ASSURANCE

(2012 Pattern) (Semester - V)

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

Instructions to the candidates:

1) ***Q.1 & Q.6 are compulsory.***
2) ***Attempt any 3 from the remaining.***

Q1) Write a detailed test plan for a mobile APP for purchasing item (deal Fast). The App-deal Fast provides option for purchasing items as well as making payment through debit as well as credit card. Also write desired test documents, test cases and test strategies. **[20]**

Q2) Explain the concept and need for non-functional testing. Suppport your answer with suitable examples. **[10]**

Q3) a) Calculate cyclomatic complexity for a code that accepts a positive integer and displays the square root of the same.

b) Compare static Vs dynamic testing.

[2×5 = 10]

Q4) Explain software reliability with respect to reliabililty measures and models.**[10]**

Q5) What is V and V model? Explain its advantages and disadvantages over other models. **[10]**

Q6) Write short notes on(Any 4). **[4×5 = 20]**

a) CAST

b) Clean room software engineering.

c) CMM

d) Object oriented testing.

e) Boundary value Analysis.

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Total No. of Questions : 7]

SEAT No. :

P2309

[Total No. of Pages : 2

[4675] - 502
M.C.A. (Management Faculty)
IT 52 : SOFTWARE PROJECT MANAGEMENT
(2012 Pattern) (Semester - V)

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

Instructions to the candidates:

1) ***Question 1 & 7 are compulsory.***
2) ***Solve ANY FOUR Questions from remaining.***
3) ***Wherever necessary, state Assumptions, give examples & draw diagrams.***
4) ***Calculators are allowed.***

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

i) Find Start time, End time, Total float & Critical path.

ii) If activity F is crashed by 2 weeks, draw network diagram & find out shortest path.

Activity	Predecessors	Duration(Weeks)
A	-	2
B	-	3
C	A	4
D	B	2
E	D,C	3
F	B	7
G	B	1
H	E,F	3
I	G	2

b) A project estimated for 251 KLOC has to be developed. for development project also requires: **[10]**

i) Software reliability is High (1.15).

ii) Product complexity is High (1.15).

iii) Analyst capability is high (0.86).

iv) Programming language experiance is low (1.07).

v) Remaining all drivers are treated, as nominal

calculate effort, Development time period, staff size & productivity.

P.T.O.

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

a) Number of user Inputs = 40

b) Number of user outputs = 30

c) Number of user equiries = 25

d) Number of user files = 04

e) Number of external Interfaces = 04

In addition to above, system requires

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 installations (0)

Other complexity factors are treated as Average. Compute function point for project.

Q3) What do you mean by project? Describe PMLC. **[10]**

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

Q5) Describe Role of user in project Implementation. **[10]**

Q6) What is Risk Management? Explain RMMM plan in detail. **[10]**

Q7) Write short notes [ANY TWO]: **[10]**

a) Types of Team.

b) Payback Models.

c) Version Control.

d) Gantt chart.

Total No. of Questions : 7]

SEAT No. :

P2310

[Total No. of Pages : 1

[4675] - 503
M.C.A.
MANAGEMENT FACULTY
IT - 53 : Emerging Trends in Information Technology
(2012 Pattern) (Semester - V)

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

Instructions to the candidates:

1) ***Question No. 1 & Questions No. 7 are compulsory.***
2) ***Solve any four from the remaining.***
3) ***Figures to the right indiactes marks.***

Q1) A deemed university want to implement e-learning model for distance learning programs. As an IT consultant do comparative analysis of various e-learning models and suggest suitable e-learning model to university also justify your suggestion. **[15]**

Q2) Define cloud computing? Explain advantages & disadvantages of cloud computing. **[10]**

Q3) Explain different types of social networking sites. **[10]**

Q4) Explain various electronic payment methods. How transactions are performed in E-banking. **[10]**

Q5) State and explain enterprise content management process in brief. **[10]**

Q6) What is E-commerce? Discuss its advantages and disadvantages. **[10]**

Q7) Write A short Note (Any 3): **[15]**

a) Features and need of social networking.

b) E-commerce models.

c) Cloud computing models.

d) LMS & LCMS

e) Applications of m-commerce.

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Total No. of Questions : 7]

SEAT No. :

P2311

[Total No. of Pages : 2

[4675] - 504
M.C.A. (Management Faculty)
IT - 54 : ADVANCED DEVELOPMENT TECHNOLOGY
(2012 Pattern) (Semester - V)

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

Instructions to the candidates:

1) ***Question No. 1 is compulsory.***
2) ***Solve ANY FOUR from remaining.***
3) ***Figures to the right indiactes marks.***

Q1) Explain Asp. Net architecture in detail. **[10]**

Q2) Explain validator controls in detail. **[15]**

Q3) Explain the concept of error pages and error logging with the help of suitable example. **[15]**

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

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

b) Select a student from DDL and display its details in under lying text boxes.

c) Add a record.

d) Delete selected record.

e) Edit selected record.

Name of table: Student Master (stud ID, stud Name, DOB, Per, courseName).

Name of server : MYASPDB (SQL Server)

Q5) a) Write code and steps to create and consume web service. **[10]**

b) Write a program to implement hit counter of the website by using session & Global as x file. **[5]**

P.T.O.

Q6) Explain use, properties and methods of following controls (ANY THREE): **[15]**

a) Image Map Control

b) Bulletedlist control.

c) Text Box Control.

d) Calendar Control.

Q7) Write short notes on following (ANY THREE): **[15]**

a) Ajax controls.

b) Tree view control.

c) Event Driven Programming.

d) Any two client side state management technique.

Total No. of Questions : 7]

SEAT No. :

P2312

[Total No. of Pages : 1

[4675] - 505
M.C.A. (Management FacultY)
IT - 55 : ADVANCED INTERNET TECHNOLOGY
(2012 Pattern) (Semester - V)

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

Instructions to the candidates:

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

Q1) a) Explain pattern matching in PERL with example. **[10]**

b) Explain Servlet Life Cycle. **[5]**

Q2) Explain Apache Tomcat and Jasper in brief? **[10]**

Q3) What is the difference between Bean Factory & Application Context? **[10]**

Q4) Explain Http Servlet Request and Http Servlet Response with suitable examples. **[10]**

Q5) Write a PHP code which adds the student personal & educational details in a database. Also display the student details who have secured first class in their 10^{th}, 12^{th} and graduation. **[10]**

Q6) Write a JSP code to generate area wise, product sales report, for medical shop. Display the expected report in proper format. **[10]**

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

a) Thread safe servlets.

b) Include ( ) and Require () in PHP.

c) JSP directives.

d) Arrays in perl.

e) Benefits of Spring Framework.

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Total No. of Questions : 7]

SEAT No. :

P2279

[Total No. of Pages : 2

[4675] - 51
M.C.A. (Management Faculty)
IT-51: HUMAN COMPUTER INTERFACE
(2008 Pattern) (Semester - V)

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

Instructions to the candidates:

1) ***Question No.1 is compulsory.***
2) ***Answer any five from remaining.***
3) ***Figure at right hand indicates full marks.***

Q1) What is the significance of usability in user interface design? Describe various principles to support usability. **[20]**

Q2) Explain design principles of form fill-in dialog boxes of various types. How layout, environment and direct manipulation programming affects the design of dialog boxes? **[10]**

Q3) a) State and explain three pillars of interface design process. **[5]**

b) Comments on arguments usually given for and against participatory design. **[5]**

Q4) a) Discuss important design issues involved in designing a web page. **[5]**

b) Compare online help and documentation Vs Printed documentation. **[5]**

Q5) Discuss about the benefits and problems of using video in experimentation? **[10]**

P.T.O.

Q6) Describe the following specification methods.

a) Transition diagrams. **[5]**

b) State charts. **[5]**

Q7) Write short notes on (any two) **[2×5 = 10]**

a) Acceptance Testing.

b) Error Message Guidelines.

c) Expert reviews.

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Total No. of Questions : 7]

SEAT No. :

P2280

[Total No. of Pages : 1

[4675]-52
M.C.A. (Management Faculty)
IT 52 : SOFTWARE IT PROJECT MANAGEMENT
(2008 Pattern) (Semester-V)

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

Instructions to the candidates:

1) ***Q. No. 1 is compulsory.***
2) ***Solve any five from remaining.***

Q1) a) What is Software Quality Control & Software Quality Assurance? Explain SQA parameters with their definitions. **[10]**

b) What is Function Point Analysis? How is it used to determine cost of Project? **[10]**

Q2) Describe various Software Project Time Estimations. Describe tools with suitable illustrations. **[10]**

Q3) Describe in brief Software Risk & Explain how to manage them. **[10]**

Q4) Explain various practices & controls necessary in HR Management. **[10]**

Q5) a) Describe concept of User Accepting Testing. **[5]**

b) Describe concept of Software Project Management. **[5]**

Q6) Explain in detail COCOMO Model with its advantages. **[10]**

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

a) Risk Management.

b) Soft Acquisition Procedure.

c) Major Task of HRM in an IT organization.

d) Grantt Chart.

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Total No. of Questions : 7]

SEAT No. :

P2281

[Total No. of Pages : 1

[4675] - 53
M.C.A. (Management Faculty)
IT - 53 : EMERGING TRENDS IN INFORMATION TECHNOLOGY
(2008 Pattern) (Semester - V)

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

Instructions to the candidates:

1) ***Question No. 1 & Questions No. 7 are compulsory.***
2) ***Solve any four from Questions from the remaining.***

Q1) A manufacturing industry wants to implement Biometric Technologies in the organization for various departments such as HR, Inventory, Production etc. Suggest suitable Biometric techniques and explain in detail the applicability of each technique for these departments. **[15]**

Q2) What is e-Governance? Explain various facilities provided through it. **[10]**

Q3) Explain embedded systems with respect to their features, components and applications. **[10]**

Q4) Discuss various e-learning models in detail. **[10]**

Q5) Explain the terms ATM, Smart card and ECS. **[10]**

Q6) Explain standardization process of GIS development. **[10]**

Q7) Write short Note (Any 3): **[15]**

a) E-commerce Models.

b) BCP

c) Supplier Chain Management.

d) Knowledge Management System Architecture.

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Total No. of Questions : 7]

SEAT No. :

P2282

[Total No. of Pages : 1

[4675] - 54
M.C.A.
IT - 55 : ADVANCED INTERNET TECHNOLOGY
(2008 Pattern) (Semester - V)

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

Instructions to the candidates:

1) ***Question No. 1 & Questions No. 7 are compulsory.***
2) ***Attempt any four questions from remaining.***
3) ***Right side indicates marks.***

Q1) Define E - commerce. How E-commerce is different than traditional commerce? Explain with example. **[15]**

Q2) Write a servlet program to accept online registration details of candidates for appearing MH-CET Examination. Assume suitable table structure. **[10]**

Q3) Write a PERL program to accept a tile name from user. Display the content of a file in proper format. **[10]**

Q4) Write a PHP code to accept & Insert students-details from student. After successful Insertion, Display students details in proper format. Assume suitable table structure. **[10]**

Q5) Explain with proper example HTTP Request & response. **[10]**

Q6) Explain CGI Architecture in detail. **[10]**

Q7) Write short note on any three: **[15]**

a) Life cycle of servlet.

b) Pattern matching in PERL.

c) Arrays in PHP.

d) ISP standard Actions.

e) Error Handling in PERL.

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Total No. of Questions : 6]

SEAT No. :

P2283

[Total No. of Pages : 1

[4675] - 55
M.C.A. (Management Faculty)
ITE - 1 : Elective : CYBER LAW AND IT SECURITY
(2008 Pattern) (Semester - V)

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

Instructions to the candidates:

1) ***Que. 1and Que. 6 are compulsory.***
2) ***Solve any three from remaining questions.***

Q1) a) Explain cybercrime with its impact on human and computer system. **[10]**

b) Comment on "Social networking is useful or useless as cyber security perspective". **[10]**

Q2) Describe the Digital Signature with advantage and disadvantage. **[10]**

Q3) What are natural threats, how to overcome from natural threats? **[10]**

Q4) Explain encryption with its type. **[10]**

Q5) Explain use of IT Act 2000 in E-commerce. **[10]**

Q6) Write short note on following: [ANY 4] **[20]**

a) Type of hackers.

b) Network security.

c) Certifying authorities.

d) Ethics for using Computer system.

e) Cybersquatting and reverse hijacking.

Total No. of Questions : 7]

SEAT No. :

P2284

[Total No. of Pages : 1

[4675] - 56
M.C.A. (Management Faculty)
ITE - 1 : PROGRAMMING LANGUAGES PARADIGM (Elective)
(2008 Pattern) (Semester - V)

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

Instructions to the candidates:

1) ***Question No.7 is compulsory.***
2) ***Answer any five questions from the remaining.***
3) ***Neat diagrams must be drawn wherever necessary.***
4) ***Figures to the right side indicate full marks.***

Q1) Explain in detail attributes of good Programming Language. **[10]**

Q2) Explain Binding and Binding times of Language. **[10]**

Q3) Explain Implicit & Explicit sequence control. **[10]**

Q4) What is Parameter Transmission? Explain how Actual and Formal Parameter's transmission takes place. **[10]**

Q5) Explain General Syntactic Criteria in detail. **[10]**

Q6) Explain Structure of compiler with suitable block diagram. **[10]**

Q7) Write short notes (any 4) **[4 × 5 = 20]**

a) Firmware computer.

b) Composite data types.

c) Static and dynamic scope structure.

d) Static storage management.

e) Recursive sub-program.

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Total No. of Questions : 7]

SEAT No. :

P2285

[Total No. of Pages : 1

[4675] - 57
M.C.A. (Management Faculty)
ITE - 1 : ADVANCED UNIX (Elective)
(2008/2005 Pattern) (Semester - V)

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

Instructions to the candidates:

1) ***Question 1 & 7 are compulsory.***
2) ***Solve any Four from remaining.***
3) ***Assume suitable data wherever necessary.***
4) ***Figure at right hand indicates full marks.***

Q1) Explain the following system calls : **[5 × 2 = 10]**

a) read ( )

b) fork ( )

c) unlink ( )

d) write ( )

e) chmod ( )

Q2) Describe the use of File and Record locking. And explain how to implement them. **[10]**

Q3) What is a Semaphore? Explain how you control operation on a semaphore. **[10]**

Q4) Explain pipes. Write a program to create a pipe from parent to child process and send data through the pipe. **[10]**

Q5) What is Race condition? How can it be avoided? **[10]**

Q6) Explain file sharing between two processes and the concept of file descriptor duplication. **[10]**

Q7) Write short notes on (any 4) **[4 × 5 = 20]**

a) Orphan process.

b) Real UID vs Effective UID.

c) File descriptor.

d) File types.

e) Buffering.

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Total No. of Questions : 7]

SEAT No. :

P2286

[Total No. of Pages : 1

[4675] - 58
M.C.A. (Management Faculty)
ITE - 1 : MOBILE WIRELESS COMPUTING (Elective)
(2008 Pattern) (Semester - V)

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

Instructions to the candidates:

1) ***Question No.1 & 7 are compulsory.***
2) ***Attempt any three from the remaining questions.***

Q1) a) Define the following terms **[10]**

i) GSM ii) UMTS iii) Mobile Management Function

iv) Frame Error Rate v) TCP issue over wireless

b) Explain the feature of wireless network. What are the advantage and disadvantage of wireless networking? **[10]**

Q2) Explain the security layer of WAP. What the problem does the WAP security layer causes? **[10]**

Q3) Compare DSSS & OFDM. **[10]**

Q4) Explain GSM framing & logical channel. **[10]**

Q5) List and explain any four function of base station controller used in GSM. **[10]**

Q6) What is Handoff? How do you perform Handoff during roaming? **[10]**

Q7) Write short notes (any 4) **[20]**

a) SIM

b) CDMA

c) Adhoc-network

d) RTC-CTC Protocol

e) Distributed computation.

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Total No. of Questions : 7]

SEAT No. :

P2287

[Total No. of Pages : 1

[4675] - 59
M.C.A. (Management Faculty)
ITE - 5 : Elective : DISTRIBUTED DATABASE MGT. SYSTEM
(2008 Pattern) (Semester - V)

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

Instructions to the candidates:

1) ***Q.7 is compulsory. Solve any 5 from remaining.***
2) ***Draw suitable diagram where needed.***
3) ***Give suitable examples if required.***
4) ***Wherever necessary state assumptions.***
5) ***Right side indicates marks.***

Q1) Explain distributed query optimization algorithm in detail. **[10]**

Q2) Explain characterization of query processors in distributed databases. **[10]**

Q3) Explain commit protocols in detail. **[10]**

Q4) What are the different types of fragmentation. Explain with suitable example. **[10]**

Q5) Explain the various Reliability issues in distributed databases. **[10]**

Q6) Explain the various deadlock handling mechanism used in distributed databases. **[10]**

Q7) Write short notes (any 4) **[20]**

a) Mobile Database System.

b) Homogeneous and Heterogeneous Databases.

c) Object Base Models.

d) Directory systems.

e) Availability in DDBS.

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