Total No. of Questions :7]

SEAT No. :

P1770

[Total No. of Pages :2

[4975]-101
M.C.A. (Mgmt. Faculty)
IT-11: COMPUTER ORGANIZATION
(2012 Pattern) (Semester - I)

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

Instructions to the candidates:

1) ***Q.1 & Q.7 are compulsory.***
2) ***Solve any four from the remaining.***
3) ***Draw neat diagrams wherever necessary.***

Q1) a) Compare 64-bit architecture with 32-bit architecture processor in detail. **[9]**

b) Define linker, loader and assembler. **[6]**

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

a) $(1101010)_2 = (?)_8$

b) $(2AB)_{16} = (?)_2$

c) $(110.101)_2 = (?)_{10}$

d) $(428)_{10} = (?)_{16}$

e) $(10110101100)_2 = (?)_{16}$

Q3) What do you mean by counter? Explain R-S latch and D latch in detail. **[10]**

Q4) Explain with neat diagram DMA interfacing with processor. **[10]**

Q5) Define instruction word format. Explain any four addressing modes wih example. **[10]**

P.T.O.

Q6) a) Explain system Bus characteristics in detail. **[5]**

b) Explain superscalar concept. **[5]**

Q7) Write short note on (Any three): **[3×5=15]**

a) Performance of processors.

b) Pipelining Hazards.

c) Cache memory structure.

d) Decoder.

ꕥ ꕥ ꕥ

Total No. of Questions :7]

SEAT No. :

P1771

[Total No. of Pages :2

[4975]-102
M.C.A. (Management Faculty)
IT-12 : 'C' PROGRAMMING
(2012 Pattern) (Semester - I)

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

Instructions to the candidates:

1) ***Question 1 is compulsory.***
2) ***Solve any five from Q.2 to Q.7.***
3) ***Assume suitable data whenever necessary.***
4) ***Figures to right hand ndicates full marks.***

Q1) Answer the following questions in brief (Any four): **[5×4=20]**

a) Explain the difference between interpreted and compiled languages.

b) What are preprocessor directives? List three types of them.

c) Explain the different types of memory allocation in C.

d) What do you understand by scope, lifetime and visibility of the variables?

e) What are the different mode in which a file can be opened.

Q2) a) Write a 'C' function to test whether a given pair of numbers are amicable numbers. (Amicable number are pairs of numbers each of whose divisors add to the other number). **[5]**

b) Write a nested macro that gives the minimum of three values. **[5]**

Q3) a) Write a 'C' function strend (s, t) which returns 1 it the string t occurs at the end of the string s, and zero otherwise. **[5]**

b) Write a 'C' function which display binary number of given integer using bitwise operator. **[5]**

P.T.O.

Q4) Define a structure in 'C', which store subject-wise marks of a student. Using a student array, write a C program to calculate the total marks in each subject for all the students. **[10]**

Q5) Write a program which accepts two file names from the command line and prints whether the contents of the two files are same or not. If not, then print the first line number and then the content of the line which they differ. **[10]**

Q6) a) Write graphic program in C to display n concentrate circles. **[5]**

b) Write a C program to reverse a string using pointers. **[5]**

Q7) a) Write a recursion function to reverse a given number? **[5]**

b) Write a C program to find H.C.F. of two given positive integers. **[5]**

EEE

Total No. of Questions :6]

SEAT No. :

P1772

[Total No. of Pages :2

[4975]-103
M.C.A. (Management Faculty)
IT-13: SOFTWARE ENGINEERING
(2012 Pattern) (Semester - I)

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

Instructions:

1) ***Q- 1 & Q 6 are compulsory.***
2) ***Solve any 3 questions from remaining.***

Q1) 'Abhay Travels' wants to develop an online system for Ticket booking. Railway Reservations, International & Domestic Air ticket can be booked through the web site. Credit Cards are used for Payments. Online ticket cancellation facility will be available with certain rules. Prepare the SRS in IEEE format for an information system of Ticket Booking. **[20]**

Q2) Design the layout of final bill given to the patient at the time of discharge. It should contain all relevant information including tests, treatments & services rendered by the hospital. Write any two validations for the bill. **[10]**

Q3) 'Reliance Fresh' announces 'Diwali Discount Scheme' for their customers. For every purchase of Rs 2000, there is 5% cash discount. For purchase above Rs. 2000 up to Rs. 3000 there is 7% cash discount. For the purchase of Rs. 4000 and above there is 9% cash discount. Apart from this, 4% extra discount is given to customers having 'Reliance Regular Customer Card.' Draw Decision Tree & Decision Table for the above case. **[10]**

Q4) Discuss similarities and differences between RAD and JAD Models **[10]**

P.T.O.

Q5) 'ABC International School' wants to computerize school admission systems. Parents have to purchase admission forms from school office. Filled admission forms are scrutinized by academic heads and candidates are called for Interview. Interview Schedule is be prepared and executed. List of selected candidates is displayed on school notice board after Interviews. The selected candidate if eligible would be granted the admission. Bank challans will be given to selected candidates. Fees will be deposited in specific bank. One copy of challan will be kept with parent & other copy will be deposited in the office.

a) Draw Functional Decomposition Diagram (FDD). **[5]**

b) Draw Entity Relationship Diagram (ERD). **[5]**

Q6) Write short notes on (Any four). **[20]**

a) Code Design.

b) Fact Finding Methods.

c) Software Maintenance Types.

d) Web Engineering.

e) Types of CASE Tools.

f) Legacy System.

Total No. of Questions :6]

SEAT No. :

P1773

[Total No. of Pages :1

[4975]-104

M.C.A. (Management Faculty)

BM-11: 104 PRINCIPLES AND PRACTICE OF MANAGEMENT AND ORGANIZATIONAL BEHAVIOUR

(2013 Pattern) (Semester - I)

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

Instructions:

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

Q1) a) Define management. Explain the contribution of Taylor in evolution of Management thoughts. **[15]**

b) "Decision making is crucial step for manager" Justify. **[10]**

Q2) Define the term organization. Explain process of organization in detail. What are the various structures of organization and which one is most suitable for organizations? **[15]**

Q3) "Transaction analysis is an excellent tool of conflict management" Discuss with reference to the ego states. **[15]**

Q4) Define group dynamics? Explain how cohesiveness and productivity norms affect group productivity. **[15]**

Q5) Define conflict. What is the difference between functional and dysfunctional conflict? Discuss how competition is different from conflict. **[15]**

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

a) Maslow Theory.

b) Staffing and Direction .

c) Decision making tools.

d) Need and Process of group development.

e) Delegation.

Total No. of Questions : 4]

SEAT No. :

P1774

[Total No. of Pages : 2

[4975]-105

M.C.A. (Management Faculty)

MT 11 - 105 : DISCRETE MATHEMATICS

(2012 Pattern) (New) (Semester - I)

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, 4.***
3) ***Figures to the right indicate full marks.***
4) ***Use of Scientific Calculator and Statistical Tables are allowed.***

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

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

b) Show that **[5]**

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

c) Prove the combinatorial identity: **[5]**

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

d) Define Bijective Function with an example. **[5]**

e) 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]**

f) Let X = {1, 2, 3, 4, 5} and R : X $\rightarrow$ X where R = {(1, 1), (1, 2), (1, 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]**

Q2) a) Indicate the variables that are free & bound. Also show the scope of the quantifiers: **[5]**

i) $(x)(P(x) \wedge R(x)) \rightarrow (x)P(x) \wedge Q(x)$

ii) $(x)(P(x) \wedge (\exists x)Q(x)) \vee ((x)P(x) \rightarrow Q(x))$

b) Let A = {a, b, c, d, e}. and R: A $\rightarrow$ A where R = {(a, a), (a, b), (a, d), (b, a), (b, c), (b, e), (c, d), (c, e), (d, b), (d, d), (e, a), (e, b), (e, e)} Find transitive closure of R using Warshall's algorithm? **[5]**

P.T.O.

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) Define Abelian Group and Cyclic group with examples. **[5]**

Q3) a) From the formulas given below which are the tautologies or contradiction. **[5]**

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

$$((P \rightarrow Q) \rightarrow (Q \rightarrow P))$$

b) How many ways can a student schedule 15 hours study in 5 days period if **[5]**

i) He can study for any number of hours on any day.

ii) Must study at least one hour each day.

c) Define Right Coset and Left Coset with examples. **[5]**

d) Let A = {1, 2, 3, 4, 5} and R : R : A $\rightarrow$ A where R = {(1, 2), (1, 3), (1, 5), (2, 4), (2, 5), (3, 1), (3, 2), (4, 4)}. Find Complement and Converse of R? **[5]**

Q4) a) Find the coefficient of $X^3Y^2Z^5$ in the expansion of $(2X - 3Y + Z)^{10}$. **[5]**

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

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

i) MATHEMATICS ii) SOCIOLOGICAL

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

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

☛ ☛ ☛

Total No. of Questions :8]

SEAT No. :

P1775

[Total No. of Pages :4

[4975]-201

M.C.A. (Management Faculty)

IT-21: OBJECT ORIENTED PROGRAMMING WITH C++

(2012 Pattern) (Semester - II)

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

Instructions to the candidates:

1) ***Question 1 is compulsory.***
2) ***Answer any six questions from remaining questions.***
3) ***Figures to the right indicate full marks.***

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

a)

```
Class test
{
    static int count;
    public:
    static void showcount(void)
    {
        cout<<"count:"<<++count;
    }
};
int test::count;
main( )
{
    test t1,t2,t3;
    t1.showcount( );
    t2.showcount( );
    t3.showcount( );
}
```

P.T.O.

b)
```
void main ( )
{
    int a, * pa, & ra;
    pa = & a ;
    ra = a ;
    cout << “a =” << a <<“ * pa =” << * pa << “ra =” <<ra;
}
```

c)
```
int & fun ( )
{
    static int a = 10;
    return a;
}
int main ( )
{
    int & y = fun ( );
    y = y+30;
    cout << fun ( );
    return 0;
}
```

d)
```
#include<iostream.h>
#include<conio.h>
void main ( )
{
    clrscr( );
    char s [ ] = "OBJECT";
    int i;
    for(i = 0;s[i];i++)
        cout<<"\n"<<s[i++]<<*(s+i++)<<*(i+s)<<i[s];
}
```

e)
```
#include < iostream.h>
#define SQUARE(x) x*x
inline float square(float y)
{
    return y*y;
}
int main( )
{
    float a = 0.5,b=0.5,c,d;
    c = SQUARE(++a);
    d = square(++b);
    cout << c << endl << d;
    return 0;
}
```

Q2) a) Explain static member function and static data member. **[5]**

b) Write a program to demonstrate copy constructor. **[5]**

Q3) a) What is a friend function? Explain with suitable example. **[5]**

b) What is polymorphism? What is the difference between compile time and runtime polymorphism? **[5]**

Q4) Explain different types of inheritance with suitable examples of each type. **[10]**

Q5) a) Explain virtual function with suitable example. **[5]**

b) Explain with example – Dynamic constructor. **[5]**

Q6) a) Write a program to overload '+' operator to concatenate two strings. **[5]**

b) Write a program that demonstrates how certain exceptions types are not allowed to be thrown. **[5]**

Q7) A company has following details of their employees in the file 'emp.dat". **[10]**

a) Emp ID

b) Emp Name

c) Emp Address

d) Emp Dept (Admin/Sales/Production/IT)

e) Emp phone

f) Emp Age

Write a program to read the above file. Create new files such as Adm.dat, Sal.dat, Pro.dat, IT.dat respectively, to store the employee details according to their department.

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

a) Stream based I/O in C++

b) Constant pointer and pointer to constant

c) Friend function and Friend Class.

Total No. of Questions :7]

SEAT No. :

P1776

[Total No. of Pages :2

[4975]-202
M.C.A. (Management Faculty)
IT-22-202: Database Management System
(2012 Pattern) (Semester - II)

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

Instructions to the candidates:

1) ***Q. No. 1 is compulsory.***
2) ***Solve any 5 from remaining questions.***
3) ***State assumptions wherever necessary.***

Q1) A chain of Big Cinema Multiplex theatres is going to computerised the Movie ticket Booking System. Following details need to be maintained by the system. **[20]**

a) The Number of screens the theatre has with its capacity.

b) The various movies, along with the director of the movie , ticket rate, time need to be maintained.

c) The show time and the screen where the movie would be played.

d) The customer can book the ticket by paying amount.

e) If the ticket is booked by a phone call or through internet , the SMS is shown at the counter half an hour before the show time to buy the ticket.

f) Draw ERD with Normalize file Layout.

Q2) Define constraint. What are different constraints (keys) in database. **[10]**

Q3) Compare two tier architecture with three tier architecture. **[10]**

Q4) Explain the various data models. **[10]**

Q5) What is the role of relational algebra? Explain the different notations used in relational algebra. **[10]**

P.T.O.

Q5) Explain concurrency control mechanism in detail. **[10]**

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

a) Log base recovery.

b) File organisation.

c) Database security.

d) ACID properties.

Total No. of Questions :7]

SEAT No. :

P1777

[Total No. of Pages :2

[4975]-203
M.C.A. (Management Faculty)
IT-23: OPERATING SYSTEM CONCEPT
(2012 Pattern) (Semester -II)

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

Instructions to the candidates:

1) ***question 7 is compulsory.***
2) ***Answer any five (5) questions from remaining (Q1-Q6).***
3) ***Neat diagrams must be drawn wherever necessary.***
4) ***Figures to the right side indicate full marks.***

Q1) Define deadlock? Explain the necessary conditions for deadlock to occur. **[10]**

Q2) How Communication in client-server takes place? Explain sockets, RPCs and RMI in detail. **[10]**

Q3) Consider the following set of jobs with their arrival times, execution time (in minutes), and deadlines.

Job Ids	Arrival Time	Execution time	Deadline
1	0	5	5
2	1	15	25
3	3	12	10
4	7	25	50
5	10	5	12

Calculate the mean turn- around time, the mean weighted turn- around time and the throughput for FCFS, SJF. **[10]**

Q4) Describe the Network File system. Explain NFS and mount protocols. **[10]**

Q5 What is the TLB? Explain in detail. **[10]**

P.T.O.

Q6) Consider the following page reference string:

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

How many page faults would occur for the following replacement algorithms, assuming frames size is 4.

a) LRU Replacement Algorithm. **[10]**

b) FIFO Replacement Algorithm.

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

a) Critical Section Problems.

b) Demand Paging.

c) Simulation.

d) Thrashing.

e) Android.

Total No. of Questions :7]

SEAT No. :

P1778

[Total No. of Pages :1

[4975]-204

M.C.A. (Management Faculty)

BM-21: Management Information System and Business Intelligence

(New) (2012 Pattern) (Semester - II)

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

Instructions:

1) ***Q. No. 7 is compulsory.***
2) ***Solve any five questions from Q. 1 to Q. 6.***

Q1) What is BI? Explain BI analytics in detail. **[10]**

Q2) Define DSS. Explain phases of decision making process in detail. **[10]**

Q3) Define MIS. Explain structure of MIS based on management activities. **[10]**

Q4) Define Expert System. Explain structure of expert system in detail. What are it's uses? **[10]**

Q5) Define Information. Explain various types of information with proper example. **[10]**

Q6) Explain the concept of data mart , data warehousing and data mining in detail. **[10]**

Q7) Write Short notes (Any Four). **[20]**

a) EIS.

b) Structure of DSS.

c) Law of requisite variety.

d) Sensitivity analysis.

e) Dashboard as BI Tool.

Total No. of Questions :6]

SEAT No. :

P1779

[Total No. of Pages :1

[4975]-205

M.C.A. (Management Faculty)

205-IT-24:ENTERPRISE RESOURCE PLANNING

(2012 Pattern) (Semester - II)

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

Instructions:

1) ***Q. No-1 & Q. No-6 is compulsory (20 marks each)***
2) ***Attempt any three from Q.No-2 to Q.No-5 (10 marks each)***
3) ***Figures to right indicate full marks.***

Q1) "COOLPAINTS" is color producing company having plant at various places in India. Currently the organization has implemented FICO (Finance and Controlling) & Material management module of ERP. Now the company wants to implement ERP for its all departments of the organization. So list & explain modules Suitable for "COOLPAINTS" for integration of remaining departments with existing modules. Also describe the ERP implementation life cycle. **[20]**

Q2) Define SCM? Explain the importance of SCM in Current scenario of E-commerce. **[10]**

Q3) Define data mining? Explain advantage & techniques of data mining. **[10]**

Q4) List & explain critical success factor of ERP implementation. **[10]**

Q5) Define CRM? Explain the importance of CRM in Current scenario of globalization. **[10]**

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

a) OLAP.

b) ERP market.

c) Data Warehouse.

d) ERP Consultant.

e) ESS.

x x x

Total No. of Questions :7]

SEAT No. :

P1780

[Total No. of Pages :1

[4975]-301
M.C.A. (Management Faculty)
IT-31: WEB TECHNOLOGIES
(2012 Pattern) (Semester - III)

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

Instructions:

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

Q1) a) Explain form element properties in Javascript with examples. **[10]**

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

Q2) Explain DOM traversing using J Query with examples. **[10]**

Q3) What is CSS? Explain properties with examples. **[10]**

Q4) Explain SSL certificate and Certificate Authority (CA) in HTTP server. **[10]**

Q5) Explain XML Name space, DTD and schema with examples. **[10]**

Q6) a) Explain client and server side image mapping with examples. **[5]**

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

i) SPAN ii) iframe

Q7) Write short Notes on (any 2) **[10]**

a) AJAX methods

b) Virtual vosting

c) String and math object in Javascript.

x x x

Total No. of Questions :8]

SEAT No. :

P1781

[Total No. of Pages :2

[4975]-302

M.C.A. (Management Faculty)

IT-32: DATA COMMUNICATION AND COMPUTER NETWORKS

(2012 Pattern) (Semester - III)

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

Instructions:

1) ***Q. 1 is compulsory.***
2) ***Attempt any five from the remaining.***
3) ***Draw neat diagrams wherever necessary.***

Q1) a) Justify with true or False (not more than 60 words for each question).**[10]**

i) SMTP is a pull protocol.

ii) The route decision is taken by each node for each packet in datagram approach to reach the destination.

iii) Bridge is used to interconnect LAN that uses identical protocol at the MAC layer.

iv) E mail works in a synchronous mode of communication.

v) TCP segments are of fixed length.

b) Detect and correct the single error in the received Hamming code word 1011001011 using even parity. **[10]**

Q2) A organization is granted the block 130·56·0·0 in class B addressing. The administrator wants to create 1024 subnets.

a) Find the subnet mask

b) Find the number of addresses in each subnet

c) Find the first and last address in the first subnet and last subnet.**[2+4+4]**

P.T.O.

Q3) a) What are the options of DHCP? List the characteristics of DHCP. **[3+2]**

b) List and describe the DNS resource records. **[5]**

Q4) What is the purpose of HTTP? How does a web browser work for request and response in HTTP? Why is HTTP called a "stateless protocol"? **[3+5+2]**

Q5) Draw and explain the different layers of TCP/IP protocol suite. Define message, segment packet, Frame and bit at different layers of OSI model. **[6+4]**

Q6) Explain OSPF algorithm and when it is efficient? **[8+2]**

Q7) a) Define firewall. Explain packet filtering firewall. What are its drawbacks? **[7]**

b) Explain proxy server. **[3]**

Q8) Write short notes (any two) **[5+5]**

a) Cloud computing

b) Digital signature

c) IPV6

d) Topologies

e) BGP

Total No. of Questions :7]

SEAT No. :

P1782

[Total No. of Pages :2

[4975]-303
M.C.A. (Management Faculty)
IT-33: DATA STRUCTURE USING C++
(2012 Pattern) (Semester - III)

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

Instructions:

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

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

a) Given the base address = 100. Find out the address of cell A[3][2][4] of an array int A[4][3][6] using row representation. Assume an integer representation takes 2 bytes.

b) Write a function for Fast Transpose of Sparse Matrix.

c) What is generalized link list? Give an example.

d) Write short notes on Multi-way tree.

e) What is ADT? Write ADT for Stack.

Q2) Construct step by step AVL tree for following set of symbols. **[10]**
STA, ADD, LDA, MOV, JMP, TRIM, XCHG, MVI, DIV, NOP, IN, JNZ
Show each step diagrammatically, specifying the rotation for that step.

Q3) a) Explain with neat diagram the concept of threaded binary tree. Give its advantages and disadvantages. **[5]**

b) Write a function to free all nodes of a doubly linked list. **[5]**

P.T.O.

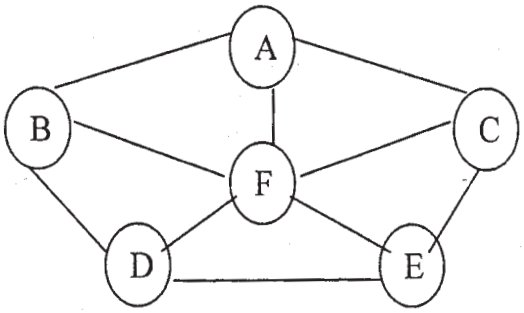
Q4) Explain with neat diagrams how would you implement queue using linked list. Write function to insert and delete an element in queue. **[10]**

Q5) Convert the following prefix expression in to infix expression. Show the content of stack for each step. + - * $ A B C D / / E F+G H **[10]**

Q6) a) Construct B tree of order 3 for the following sequence of elements 50,60,70,40,30,20,10,80,90,100. **[5]**

b) Write a function to evaluate an expression tree. **[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 :8]

SEAT No. :

P1783

[Total No. of Pages :1

[4975]-304

M.C.A. (Management Faculty)

IT-34: ADVANCE DATABASE MANAGEMENT SYSTEM

(New) (2012 Pattern) (Semester - III)

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

Instructions:

1) ***Q. 8 is compulsory.***
2) ***Attempt any 6 from the remaining.***

Q1) Explain: 000BMS, ORDBMS,RDBMS. **[10]**

Q2) What do you mean by Inter-Query & Intra - query parallelism. Explain with example. **[10]**

Q3) Discuss commit Protocol. **[10]**

Q4) Explain the characteristics of Data warehouse & its architecture in detail. **[10]**

Q5) What is XML? Explain various features of XML also explain the difference between XML & HTML. **[10]**

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

Q7) Explain Data preprocessing in detail **[10]**

Q8) Write short note (any 2) **[2×5=10]**

a) Web based architecture.

b) Spatial database

c) Mobile Database

d) Genetic Algorithm

x x x

Total No. of Questions : 7]

SEAT No. :

P1784

[Total No. of Pages : 2

[4975]-305

M.C.A. (Management Faculty)

IT 35 : OBJECT ORIENTED ANALYSIS AND DESIGN

(2012 Pattern) (Semester - III)

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

Instructions to the candidates:

1) ***Q. 1 and Q.7 are compulsory.***
2) ***Solve any four from the remaining.***
3) ***Mention assumptions made for solving the case studies.***

Q1) Universal Engineering College has online faculty feedback system. The feedback can be given only by the students studying in the college for current academic year. Each course in the college has many faculties teaching various subjects in various courses. Student can give feedback for faculty who has taught him/her for the current semester. One student can fill the feedback form only once in a semester. According to the points given by the students in the feedback, system. Calculate the grades of faculty. Faculty can view the feedback grades of his own subject. HOD can view the feedback of his own cours.

Draw Use Case Diagram and class Diagram for the above case. **[20]**

Q2) Explain Object Oriented Analysis Methodology with suitable example. **[10]**

Q3) a) Draw state transition diagram for a mobile battery charger. **[5]**

b) Draw collaboration diagram for booking in airticket. **[5]**

Q4) a) Explain the four phases of Rational United Process. **[5]**

b) Explain various approaches for identifying classes. **[5]**

Q5) Draw activity diagram for online booking of movie tickets of movie in multiplex. The payment should be done by credit card. The tickets can be cancelled three hours before the show time. **[10]**

P.T.O.

Q6) a) Explain the multi-tiered architecture. **[5]**

b) Discuss the guidelines for designing the user interface. **[5]**

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

a) Mapping Object to Relational Data Structure.

b) Guidelines for preparing test plan.

c) Categories of Pattern.

d) Design Refinement.

Total No. of Questions :7]

SEAT No. :

P1785

[Total No. of Pages :2

[4975]-401
M.C.A. (Management Faculty)
IT-41: JAVA PROGRAMMING
(2012 Pattern) (Semester - IV)

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

Instructions:

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

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

a) What is Method Overloading?

b) Explain Applet Life Cycle?

c) What is Adapter Class?

d) Explain Finalize()?

e) Explain unchecked exceptions?

Q2) Write JDBC application to register Football team for Pro-football matches. Assume suitable structure. **[10]**

Q3) Write an applet to display Mouse position on status bar. **[10]**

Q4) Write a Java Socket program. Client will accept any positive digit number and send to server. It will display response sent by server. Server will read number & send number in words to client. **[10]**

Q5) Write a Java applet program to simulate running digital clock that display time in HH:MM:SS format. **[10]**

Q6) Explain in detail Parameter passing in remote methods (marshalling & Unmarshalling) in RMI. **[10]**

P.T.O.

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

a) Datagrams in Networking.

b) Java Beans.

c) Layout Managers.

x x x

Total No. of Questions :8]

SEAT No. :

P1786

[Total No. of Pages :2

[4975]-402
M.C.A. (Management Faculty)
IT-42: MOBILE COMPUTING
(2012 Pattern) (Semester - IV)

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

Instructions:

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) Draw functional architecture of GSM system and explain function of each subsystem. What is the channel structure of GSM? **[10]**

b) Write an Android application to read and Toast the content from internal storage file sample. txt. **[10]**

Q2) Explain query processing, Recovery and QoS issues of Mobile Databases. **[10]**

Q3) Explain functional differences of Generation of Mobile Computing Technology. **[10]**

Q4) Write Android application to capture Data and Time. **[10]**

Q5) What is Cursors/ List and explain several functions to navigate query results in Android database. **[10]**

Q6) What is sensor Manager? Explain the role of sensor manager in Android with examples. **[10]**

Q7) Explain the process of sending and receiving Data messages. Illustrate with Example. **[10]**

P.T.O.

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

a) Mobile Agent

b) J2ME

c) Handoffs

d) Android library

e) Views and View groups

f) Map based activities

x x x

Total No. of Questions :7]

SEAT No. :

P1787

[Total No. of Pages :1

[4975]-403

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

IT-43: INFORMATION SECURITY AND AUDIT

(2012 Pattern) (Semester - IV)

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

Instructions:

1) ***Q.No.1 & 7 are compulsory.***
2) ***Solve any FOUR from remaining.***

Q1) Case study: Computer security is growing concern for many personal computer owners. Cyber crime has been on constant rise. Many house computer owners dont realise that they need to pay attention to computer security very closely. This case describes an investigation on both sides of computer attacks. The intend is to reveal indication that an instruction has occurred by showing event that occur when a personal computer users password has been hacked, with the gained knowledge, a system can be put in place that can alert user that his /her computer is under attack. Give a solution how to protect your system from network attacks for above case study. **[10]**

Q2) Describe ISMS in detail with suitable diagram. **[10]**

Q3) What are the major threats to Information security? **[10]**

Q4) What is IT Governance? Explain COBIT with diagram & advantages. **[10]**

Q5) Explain need of various information security policies. **[10]**

Q6) Describe logical & physical access controls. **[10]**

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

a) Audit standards

b) Cyber crime

c) NGS auditor

d) Security & e-mail system

e) CIA

x x x

Total No. of Questions : 8]

SEAT No. :

P1788

[Total No. of Pages : 2

[4975]-404

M.C.A. (Management Faculty)

IT44 : DESIGN AND ANALYSIS OF ALGORITHMS

(2012 Pattern) (Semester - IV)

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

Instructions to the candidates:

1) ***Question No. 1 and 8 are compulsory.***
2) ***Solve any FIVE questions from Q2 to Q7.***
3) ***Figures to the right indicate full marks.***

Q1) State and explain characteristics of good algorithm and also explain time and space complexity of an algorithm. **[10]**

Q2) Prove that: **[10]**

a) $f(n) = 2n^2 + 4n + 12$ is $O(n^2)$

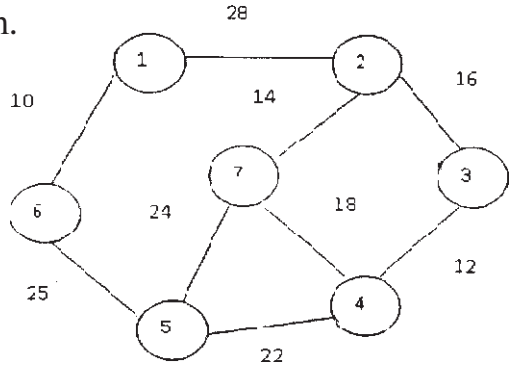
b) $f(n) = 10n^3 + n \log n$ is $\theta(n^3)$

Q3) Discuss greedy approach for problem solving and apply the same for designing Huffman's Coding algorithm. **[10]**

Q4) Apply OBST algorithm using dynamic programming approach for given data set. $n = 5$, $(p1, p2, p3, p4, p5) = (0.15, 0.10, 0.05, 0.10, 0.20)$ **[10]**
(q0, q1, q2, q3, q4, q5) = (0.05, 0.10, 0.05, 0.05, 0.05, 0.10)

Q5) Explain Counting sort algorithm for following data. Also state its time complexity {4, 1, 3, 4, 3}. **[10]**

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



P.T.O.

Q7) Write an algorithm for multistage graph using dynamic programming technique. **[10]**

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

a) NP Complete and NP Hard Problems.

b) N-Queen problem.

c) Best-case, Worst-case and Average-case performance.

Total No. of Questions : 5]

SEAT No. :

P1789

[Total No. of Pages : 5

[4975]-405

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 non programmable calculators is allowed.***
4) ***Figures to the right indicate full marks.***

Q1) a) Find optimum solution for the following transportation problem: **[7]**

		Destinations				
		D	E	F	G	Supply
Origins	A	11	13	17	14	250
	B	16	18	14	10	300
	C	21	24	13	10	400
Demand		200	225	275	250	

b) A small project is composed of seven activities whose time estimates are listed in the table as follow: **[7]**

Activity	**Estimated duration (weeks)**		
	Optimistic	**Most Likely**	**Pessimistic**
1-2	1	1	7
1-3	1	4	7
2-4	2	2	8
2-5	1	1	1
3-5	2	5	14
4-6	2	5	8
5-6	3	6	15

P.T.O.

i) Draw the project network.

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

iii) What is the probability that the project will be completed 4 weeks earlier than expected time?

c) A self service store employs one cashier at its counter. Nine customers arrive on an average every 5 minutes while the cashier can serve 10 customers in 5 minutes. Assuming Poisson distribution for arrival rate and exponential distribution for service rate Find: **[7]**

i) The average number of customers in the system.

ii) The average time spend by a customer in the store.

iii) Average time a customer waits before being served.

d) Seven jobs are to be processed through 2 machines 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	11	14
Machine B:	12	8	7	12	10	6	13

Find the elapsed time and idle times for Machines A and B.

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

Max: $Z = -2x_1 - x_3$

Subject to:

$x_1 + x_2 - x_3 \geq 5$

$x_1 - 2x_2 + 4x_3 \geq 8$

$x_1, x_2, x_3 \geq 0$

b) The following mortality rates have been observed for a certain type of light bulbs. **[7]**

Week	1	2	3	4	5
% failing by the end of week	10	25	50	80	100

There are 1000 bulbs in use and it costs Rs. 2 to replace an individual bulb which has burnt out. If all bulbs were replaced simultaneously it would cost 50 paise per bulb. It is proposed to replace all bulbs at fixed intervals whether or not they have burnt out and to continue replacing burnt out bulbs as they fail. At what intervals should all the bulbs be replaced?

Q3) a) A stockiest purchases an item at the rate of Rs. 40 per piece from a manufacturer. 2000 units of the item are required per year. What should be the order quantity per order that minimizes the total cost, if the cost per order is Rs. 20 and the inventory charges are 5% of the item cost? Also find the number of order per years and the time between two consecutive orders. **[7]**

b) Five new machines are to be located in a machine shop. There are five possible locations in which the machines can be located. C_{ij}, the cost of placing machine 'i' in the place 'j' is given in the table below: **[7]**

Place

Machine	**1**	**2**	**3**	**4**	**5**
1	15	10	25	25	10
2	1	8	10	20	2
3	8	9	17	20	10
4	14	10	25	27	15
5	10	8	25	27	12

It is required to place the machines at suitable places so as to minimize the total cost. Solve the problem by assignment technique.

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

i) Gradual Failure of Machines.

ii) Optimum Lot Size.

iii) Earliest completion time.

iv) Float.

v) Optimistic Time.

vi) Activity.

vii) Surplus Variable.

b) Solve the following using Big-M Method. **[7]**

Minimize $Z = x_1 + x_2$

Subject to

$2x_1 + x_2 \geq 2$

$-x_1 - x_2 \geq 1$

$x_1, x_2 \geq 0$

Q5) a) The following is the data regarding a project: **[7]**

Activity	Preceding Activity	Normal		Crash	
		Time (weeks)	Cost (Rs. '000)	Time (weeks)	Cost (Rs. '000)
A	-	10	20	7	30
B	-	8	15	6	20
C	B	5	8	4	14
D	B	6	11	4	15
E	B	8	9	5	15
F	E	5	5	4	8
G	A, D, C	12	3	8	4

Indirect Cost is Rs. 2800 per week. Find the optimum duration and the associated cost.

b) A branch of Nationalized Bank has only one typist. Since the typing work varies in length, the typing rate is randomly distributed approximating a Poisson distribution with mean service rate of 8 letters per hour. The letters arrive at a rate of 5 letters per hour during the entire 8-hour work day: **[7]**

Find:

i) Busy time of the typist.

ii) Percent time that an arriving letter has to wait.

iii) Average number of letters waiting to be typed.

Total No. of Questions : 8]

SEAT No. :

P1790

[Total No. of Pages : 2

[4975]-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) ***Question No. 1 & 8 are compulsory.***
2) ***Attempt any 4 from the remaining.***
3) ***Write your assumptions.***
4) ***Figures to the right indicate full marks.***
5) ***Draw neat diagrams wherever necessary.***

Q1) Write a detailed test plan for a mobile application which will allow user to apply for any CET conducted by DTE through their login. Also this application has an option to pay the fees online. your plan should include the scope, objectives, schedule, risks, desired test documents, test strategies and test deliverables. **[10]**

Q2) Explain Software Reliability. Explain two reliability models. **[10]**

Q3) Explain V & V model in detail. **[10]**

Q4) Explain different types of reviews in detail with examples. **[10]**

Q5) Explain testing lifecycle in detail. **[10]**

Q6) Write test cases for finding largest number among 3 numbers. Also calculate cyclomatic complexity for this code? **[10]**

P.T.O.

Q7) Explain Testing of object oriented application and Testing of Web Application. **[10]**

Q8) Write short notes on (Any 4 ONLY): **[20]**

a) Alpha Vs Beta Testing.

b) CMM.

c) Clean Room Software Development.

d) BVA and Equivalence Partitioning.

e) Mc Call's Quality Factors.

f) Tester's workbench.

Total No. of Questions : 8]

SEAT No. :

P1791

[Total No. of Pages : 3

[4975]-502

M.C.A. (Management Faculty)

502 : IT52 : SOFTWARE PROJECT MANAGEMENT

(2012 Pattern) (Semester - V)

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

Instructions to the candidates:

1) ***Solve any seven questions from Q.No. 1 to 8.***
2) ***Figures to the right indicate full marks.***

Q1) A new project with estimated 900KLOC system has to be developed. For development project also requires. **[10]**

a) Software reliability is High(1.15).

b) Product Complexity is High (1.15).

c) Analyst Capability is high (0.86).

d) Programming Language Experience is low (1.07).

e) Remaining all driver are treated as Nominal.

Calculate the effort, development Time, average staff size and productivity of the project.

Q2) Draw a network diagram from the given information. **[10]**

a) Find Start Time, End Time, Total Float and Critical Path.

b) If activity O crashed by 2 weeks, draw network diagram and find out critical path and shortest path.

P.T.O.

Activity	Predecessors	Duration (weeks)
J	-	3
K	-	4
L	J	5
M	K	3
N	M, L	4
O	K	8
P	K	2
Q	N, O	4
R	P	3

Q3) What is risk management? Explain the different stage involved in risk management. **[10]**

Q4) Consider a project with the following functional units: **[10]**

a) Number of User Inputs - 40

b) Number of User output - 40

c) Number of User enquiries - 55

d) Number of User files - 04

e) Number of external Interfaces - 04

In addition to above, system requires significant Data communication (4) Other Complexity factors are treated as average. Compute the functional point for the project.

Q5) Explain software team structure and discuss about the team communication. **[10]**

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

Q7) Explain performance Management in detail. **[10]**

Q8) Write Short Notes on the following (Any two): **[10]**

a) WBS.

b) NPV and ROI.

c) MS-Project.

d) Version Control.

Total No. of Questions : 7]

SEAT No. :

P1792

[Total No. of Pages : 1

[4975]-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 1 and 7 are compulsory.***
2) ***Attempt any four questions from remaining.***

Q1) An individual cloud user wants to use cloud computing service. You as a service provider suggest a suitable cloud computing model and components required by the user. **[15]**

Q2) Explain security issues with social networking sites. **[10]**

Q3) What is ECM? Explain different type of content with suitable example. **[10]**

Q4) What factors and / or skills contribute to being a successful learner in an e-learning class? **[10]**

Q5) What is E-commerce? Explain E-commerce models with suitable example. **[10]**

Q6) What is EDM? Explain the need of EDM in an IT organisation. **[10]**

Q7) Write short notes (any three): **[15]**

a) Standards for e-Learning.

b) Drivers of m-commerce.

c) Electronic Payment System.

d) Cloud Security.

e) Web-based CMS tools.

☛ ☛ ☛

Total No. of Questions : 7]

SEAT No. :

P1793

[Total No. of Pages : 2

[4975]-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 indicate full marks.***

Q1) Explain Server side statemanagement Techniques in detail. **[10]**

Q2) Explain the concept of Exception Handling & Error pages in detail. **[15]**

Q3) Explain any three validator controls with suitable example. **[15]**

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

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

b) Select a employee from drop down list and display its details in under lying text boxes.

c) Add a record.

d) Delete selected record.

e) Edit selected record.

Name of table :- Employee Master (EmpID, Emp name, DOB, Salary, Dept)

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 & file size should not be greater than 2MB. **[8]**

P.T.O.

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

a) Treeview control.

b) Image Map Control.

c) Radio Button List Control.

d) Text Box Control.

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

a) Login Controls.

b) Web Services.

c) Ajax server side controls.

d) Event Driven Programming.

Total No. of Questions : 7]

SEAT No. :

P1794

[Total No. of Pages : 2

[4975]-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 must be drawn wherever necessary.***
4) ***Figures to the right side indicate full marks.***

Q1) a) What are JSP actions? Explain error handling in JSP with example. **[10]**

b) Explain pattern matching in PERL. **[5]**

Q2) Write JSP code to display ward wise voter details. Assume suitable table structure. **[10]**

Q3) What is thread safe Servlet? Write a Servlet program to accept online voter details for registration of voters. Assume suitable table structure. **[10]**

Q4) What is Dependency injection? Explain in detail the different types of IoC (Dependency injection)? **[10]**

Q5) Explain Servlet life cycle with example. **[10]**

Q6) Write PHP code to accept Passport registration information from the customer, store it into the database and display the customer information. **[10]**

P.T.O.

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

a) Web.xml.

b) Arrays in PERL.

c) Aspect Orient Programming.

d) Tomcat Directory Structure.

e) Aspects which can affect the performance of Tomcat server.