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**M.C.A. (Commerce) (Part – I) (Semester – I) Examination, 2014
COMPUTER ORGANIZATION AND ARCHITECTURE**

Day and Date : Tuesday, 2-12-2014
Time : 11.00 a.m. to 2.00 p.m.

Total Marks : 70

Instructions: 1) *All questions are compulsory.*
2) *Figures to the right indicates full marks.*

1. Select the correct answer to the following : 10
- 1) The NAND gate output will be low if the two inputs are
A) 00 B) 01 C) 10 D) 11
 - 2) What is the binary equivalent of the decimal number 368 ?
A) 101110000 B) 110110000 C) 111010000 D) 111100000
 - 3) The number of control lines for a 8 : 1 multiplexer is
A) 2 B) 3 C) 4 D) 5
 - 4) How many Flip-Flops are required for mod-16 counter ?
A) 5 B) 6 C) 3 D) 4
 - 5) The hexadecimal number 'A5' has the decimal value equivalent to
A) 80 B) 256 C) 100 D) None of these
 - 6) The Boolean expression $A.B + A.B + A.B$ is equivalent to
A) $A + B$ B) $A.B$ C) $A - B$ D) None of the above
 - 7) The output of a logic gate is 1 when all its inputs at logic are 0. The gate is either
A) a NAND or an EX-OR B) an OR or an EX-NOR
C) an AND or an EX-OR D) a NOR or an EX-NOR
 - 8) 8086 microprocessor has _____ bit of address bus.
A) 20 B) 25 C) 16 D) 8



9) 80286 microprocessor has _____ virtual memory.

- A) 5 KB B) 1 GB C) 16 GB D) 20 GB

10) After Reset the 80386 starts instruction fetch from the address _____

- A) FFFFF0 B) FFFFFFFF C) FFFFFFFF0 D) All of these

2. Write a short note on : (5×2)

- i) Counter
- ii) Encoder
- iii) Micro programmed Control Unit
- iv) Parallel Processing
- v) EPROM.

3. Attempt **any four** from following : (4×5)

- i) Explain hardwired control unit.
- ii) Explain the memory Hierarchy in detail.
- iii) Discuss the concept of pipelining.
- iv) What is Flip-Flop ? Discuss J-K Master Slave in detail.
- v) What is shift registers ?
- vi) What is Multiplexer ? Explain the 8 : 1 multiplexer.

4. Attempt **any two** from following : (2×10)

- i) Explain different types of Parallel Processing.
- ii) Explain Multiplexer and Demultiplexer with example.
- iii) Explain 80386 Microprocessor in detail.

5. What is DMA ? Discuss different DMA addressing modes in details. 10



Seat No.	
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**M.C.A. – I (Commerce) (Semester – II) Examination, 2014
MANAGEMENT INFORMATION SYSTEM AND ENTERPRISE
RESOURCE PLANNING**

Day and Date : Friday, 12-12-2014
Time : 11.00 a.m. to 2.00 p.m.

Max. Marks : 70

Instructions: 1) *All questions are compulsory.*
2) *Figure to the right indicates full marks.*

1. Select correct alternative from the following : **10**

i) For divisional or departmental purposes, _____ provides the account codes to be used in recording revenue, expense, accounts receivable and accounts payable activity.

- A) Financial Accounting B) Marketing Management
C) Personnel Management D) Costing

ii) _____ uses the concept of management control in its design and relies heavily on the fact that the decision maker or the manager is a human being and is a human processor of information.

- A) EIS B) MIS
C) ES D) DSS

iii) A _____ is a choice between two or more alternatives. If you only have one alternative, you do not have a decision.

- A) Support B) Decision
C) Selection D) Solution

iv) In _____, the decision maker examines reality and identifies and defines the problem.

- A) Implementation B) Choice
C) Intelligence D) Design



- v) An _____ is a tool that provides direct on-line access to relevant information in a useful and navigable format.
- A) MIS
B) DSS
C) ES
D) EIS
- vi) A _____ management is a network of facilities and distribution options.
- A) SCM
B) CRM
C) Sales
D) All of the above
- vii) _____ connects various functions of the organization in an integrated fashion.
- A) CRM
B) ERP
C) EIS
D) MIS
- viii) Repeat purchases rely on _____
- A) Customer satisfaction
B) Customer expectation
C) Customer's view
D) None of these
- ix) An Enterprise is a group of _____ with a common goal which has certain resources at its disposal to achieve the goal.
- A) People
B) Organizations
C) Companies
D) Managers
- x) _____ is the time between placement of the order and delivery of the product.
- A) Cycle time
B) Procedure
C) Cycle interval
D) None of these

2. Define the terms :

(5×2=10)

- i) MIS
- ii) ERP
- iii) DSS
- iv) HRM
- v) Decision Making.



3. Attempt **any four** from following : **(4×5=20)**
- i) What is an enterprise ? What is the role of enterprise ?
 - ii) Write on MIS as Information System.
 - iii) What is MIS ? Discuss characteristics of an effective MIS ?
 - iv) What are the limitations of MIS ?
 - v) What is DSS ? Explain the components of a DSS.
 - vi) Write a note on Sales and Distribution Module of ERP.
4. Attempt **any two** from following : **(2×10=20)**
- i) Explain needs and characteristics of EIS.
 - ii) Explain different phases of ERP implementation.
 - iii) Explain in brief about SCM and CRM along with their benefits.
5. Write the answer of the following question in brief : **(1×10=10)**
- i) What is information ? Explain in detail – the concept of Quality of Information.
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M.C.A. Commerce (Part – II) (Semester – III) Examination, 2014
WEB PROGRAMMING (Old)

Day and Date : Tuesday, 2-12-2014
Time : 3.00 p.m. to 6.00 p.m.

Total Marks : 70

Instructions: 1) Q. No. 1 and Q. No. 7 are **compulsory**.
2) Attempt **any two** questions from Q. No. 2 to Q. No. 4.
3) Attempt **any one** question from Q. No. 5 and Q. No. 6.

1. A) Choose the correct option :

7

- 1) _____ object reveals information regarding the browser used by website visitors.
 - a) Window
 - b) Navigator
 - c) History
 - d) Document
- 2) The ASP _____ object is used to send output to the user from the server.
 - a) Session
 - b) Request
 - c) Application
 - d) Response
- 3) To exit a For... Next statement the keyword is _____
 - a) Exit
 - b) For exit
 - c) Exit for
 - d) None of above
- 4) Javascript is used to create _____
 - a) Static pages
 - b) Interactive web pages
 - c) Non interactive web page
 - d) None of these
- 5) The _____ tag defines a region in the image map.
 - a) Area
 - b) Shape
 - c) Usemap
 - d) Width
- 6) SAX stands for _____
 - a) System API extension
 - b) Simple API for XML
 - c) Simple Access XML
 - d) None of the above



- 7) Session object has _____ method to destroy the current session.
- a) end ()
 - b) timeout ()
 - c) abandon ()
 - d) destroy ()
- B) State whether **True** or **False** : 7
- 1) Javascript supports string concatenation (+) operator.
 - 2) In frame tag “href” attribute indicates URL of document to be loaded in frame.
 - 3) Default method of Form is GET.
 - 4) In VBScript string is the default data type.
 - 5) XML elements are case sensitive.
 - 6) The DYN SRC tag is used to specify either absolute or relative path name of hyperlinked file.
 - 7) Global.asa is special file that handles session and application events.
2. A) What is CSS ? Explain its types with suitable examples. 7
- B) Explain ASP response object with its properties and methods. 7
3. A) What is event handling ? Write a javascript code for calculating square and square root of number entered in textbox by using events. 7
- B) Explain error handling in ASP with example. 7
4. A) Design a login form and validate email id and password using javascript. 7
- B) Explain different types of lists and its tags with example. 7
5. A) Explain following built in objects with different properties and methods. 7
- i) Math
 - ii) String
- B) Explain different data types in VBScript. 7
6. A) Implement XML DSO for displaying records in table. 7
- B) Explain Boolean functions in VBScript with examples. 7
7. Write a ASP code to insert employee record into access database. Accept data from HTML form such as name, Joining date, salary fields. 14
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**M.C.A. – II (Semester – III) Examination, 2014
COMMERCE (Old)
Data Communication and Computer Networks**

Day and Date : Thursday, 4-12-2014
Time : 3.00 p.m. to 6.00 p.m.

Total Marks : 70

- Instructions :** 1) Q. No. 1 and Q. No. 7 are **compulsory**.
2) Attempt **any two** questions from Q. No. 2, 3 and 4.
Solve **any one** question from Q. No. 5 and Q. No. 6.
3) Figures to **right** indicate **marks** to a question or sub question.

1. a) Choose the correct option and rewrite the sentences : 7
- 1) The _____ portion of LAN management software restricts access, records user activities and audit data etc.
a) Configuration management b) Security management
c) Performance management d) Counter segment
 - 2) _____ is the max cable length of STP.
a) 100 ft b) 200 ft
c) 100 m d) 200 m
 - 3) The layer which establishes, manages, maintains and terminates communication channels between software programs on network nodes is _____
a) Presentation layer b) Session layer
c) Transport layer d) Network layer
 - 4) Star, Bus and Ring are examples of _____
a) Transport layer b) Data link layer
c) Application layer d) Network layer
 - 5) Data rate of Twisted Pair (Shielded) for Bus Topology is _____
a) 10 mbps b) 2 mbps
c) 1 mbps d) None of the above



6) _____ is characteristics of Simplex Transmission ?

- a) An O/P terminal can only transmit and never receive
- b) An input terminal can only receive and transmit
- c) Message always flows in both direction
- d) None of the above

7) Baudot Code is _____

- a) 7 bit code
- b) 5 bit code
- c) 4 bit code
- d) 6 bit code

b) State **True** or **False** :

7

- 1) A circuit-switched network is made of as et of switches connected by transmission links.
- 2) A repeater is an amplifier.
- 3) A static routing table contains information entered manually.
- 4) Source port address is a 16-bit field that defines the port number of application program.
- 5) DNS is a software that can be used in specific platform.
- 6) DNS can be pictured as an inverted hierarchical tree structure.
- 7) When the sender and the receiver of an e-mail are on the same system, only one user agent is needed.

2. a) Explain firewall policies and rules.

7

b) What are the problems with SNMP ? Explain in short.

7

3. a) What is SMTP ? Explain in short.

7

b) Write a note on : DHCP and scope resolution.

7

4. a) Explain packet switching in detail.

7

b) What do you mean by connectionless networks ? Explain its features.

7

5. a) Differentiate between OSI and TCP/IP.

7

b) Explain access techniques used in LAN.

7

6. a) Write a note on : Birthday attack.

7

b) Explain error status code in short.

7

7. Explain all the layers of TCP/IP model with their functions.

14



- 7) Which of the following is the correct operator to compare two variables ?
A) := B) = C) equal D) ==
- 8) Which of the following is true ?
A) 1 B) 66
C) -1 D) All of the above
- 9) Which of the following is the boolean operator for logical-and ?
A) & B) && C) | D) |&
- 10) Evaluate !(1 && !(0 || 1)).
A) True B) False
C) Run Time Error D) Compiler Error

B) Predict the output :

4

```
1) template <int N>
class A {
    int arr [N];
public:
    virtual void fun ( ) {cout << "A::fun( )";}
};
class B : public A<2> {
public:
    void fun( ) {cout << "B::fun( ) "};
};
class C : public B { };
int main ( ) {
    A <2> *a = new C;
    a-> fun ( );
    return 0;
}
```

```
2) class A
{
    int id;
public:
    A (int i) {id = i;}
    void print ( ) {cout << id << endl;}
```



```
};  
int main ( )  
{   A a[2];  
    a[0].print ( );  
    a[1].print ( );  
    return 0;   }
```

3) class A

```
{int id;  
    static int count;  
public :  
    A ( ) {  
        count ++;  
        id = count;  
        cout << "constructor called" << id << endl;  }  
    ~A ( ) {  
        cout << "destructor called" << id << endl;  }  
};  
int A :: count = 0;  
int main ( )  
{   A a[2];  
    return 0;   }
```

4) class Base {

```
protected:  
    int x;  
public:  
    Base (int i) {x = i;}  
};  
class Derived : public Base {  
    public :  
        Derived (int i) : Base (i) { }  
        void print ( ) {cout <<x;}  
};  
int main ( )  
{   Derived d (10);  
        d.print ( );   }
```



2. a) Explain in detail various classes for file stream operation, also give an example for opening and closing file. 7
b) Explain namespace with its use and application. 7
 3. a) What are manipulators ? Explain different manipulator supported by C++ ? 7
b) Explain generic sort and generic classes. 7
 4. a) Explain the use of new and delete with example. 7
b) Explain static with reference to member variable and function. 7
 5. Create a class Int. Overload all five integer arithmetic operators (+ ; = ; * ; / ; and %) so that they operate on objects of type int. If the result of any such arithmetic operation exceeds the normal range of ints = from = 32,768 to 32,767 – have the operator print a warning and terminate the program. Write a program to test this class. 14
 6. Write a note on following (**any four**) : 14
 - a) Call by Reference and Return by Reference
 - b) Const member functions
 - c) Copy constructor
 - d) Algorithms
 - e) Predicates.
 7. Create a class called employee that contains a name (an array of char) and an employee number (type long). Include a member function called get data () to get data from the user for insertion into the object, and another function called put data () to display the data. Assume the name has no embedded blanks.
Write a main () program to exercise this class. It should create an array of type employee, and then invite the user to input data for up to 100 employees. Finally, it should print out the data for all the employees. 14
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**M.C.A. (Part – II) (Semester – III) Examination, 2014
(Commerce and Management Faculty)
ADVANCED DATABASE MANAGEMENT SYSTEM (Old)**

Day and Date : Tuesday, 9-12-2014
Time : 3.00 p.m. to 6.00 p.m.

Total Marks : 70

- Instructions :** 1) *Q. 1 and Q. 7 are compulsory.*
2) *Attempt any two questions from Q. 2 to Q. 4.*
3) *Attempt any two questions from Q. 5 to Q. 6.*
4) *Figures to the right side indicate full marks.*

1. A) Select the correct alternative :

7

- 1) The active data warehouse architecture includes which of the following ?
 - A) At least one data mart
 - B) Data that can extracted from numerous internal and external sources
 - C) Near real-time updates
 - D) All of the above
- 2) A goal of data mining includes which of the following ?
 - A) To explain some observed event or condition
 - B) To confirm that data exists
 - C) To analyze data for expected relationships
 - D) To create a new data warehouse
- 3) A data warehouse is which of the following ?
 - A) Can be updated by end users
 - B) Contains numerous naming conventions and formats
 - C) Organized around important subject areas
 - D) Contains only current data



- 4) A snowflake schema is which of the following types of tables ?
- A) Fact
 - B) Dimension
 - C) Helper
 - D) All of the above
- 5) Data transformation includes which of the following ?
- A) A process to change data from a detailed level to a summary level
 - B) A process to change data from a summary level to a detailed level
 - C) Joining data from one source into various sources of data
 - D) Separating data from one source into various sources of data
- 6) A distributed database has which of the following advantages over a centralized database ?
- A) Software cost
 - B) Software complexity
 - C) Slow response
 - D) Modular growth
- 7) Using ODL, you can define which of the following ?
- A) Attribute
 - B) Structure
 - C) Operation
 - D) All of the above

B) State **true** or **false** : **3**

- i) Successful data warehousing requires that a formal program in Total Quality Management (TQM) be implemented.
- ii) Each site (or node) in a distributed system is subjected to the same types of failure as in a centralized system.
- iii) Databases that are stored on computers at multiple locations and are not interconnected by a network are known as distributed databases.

C) Answer in $1/2$ sentences : **4**

- i) Data mining
- ii) Homogeneous database
- iii) Data preprocessing
- iv) Knowledge base system.



2. A) Describe how distributed database system and centralized database system differs. 7
B) What is the purpose of a 2 phase commit protocol ? How does it work ? 7
 3. A) What is data warehousing ? Explain any two types of data modeling. 7
B) State and explain apriori algorithm. 7
 4. Explain different forms of parallelism in brief. 14
 5. Write in short : 14
 - a) Directory system
 - b) Mobile database.
 6. Write short answers : 14
 - a) N-Tier architecture
 - b) Decision tree.
 7. Write in short on **(any two)** : 14
 - a) What is OLAP ? Explain various operations on Data Cube.
 - b) Parallel database architecture
 - c) OODBMS vs. RDBMS.
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M.C.A. – II (Semester – III) Examination, 2014
(Commerce)

MANAGEMENT SUPPORT SYSTEMS AND IS SECURITY (Old)

Day and Date : Thursday, 11-12-2014
Time : 3.00 p.m. to 6.00 p.m.

Total Marks : 70

- Instructions:** 1) Q. No. 1 and Q. No. 7 are **compulsory**.
2) Attempt **any two** questions from Q. No. 2, 3, and 4. Solve **any one** question from Q. No. 5 and Q. No. 6.
3) Figures to **right** indicate marks to a question or sub question.

1. a) Choose the correct option and rewrite the sentences : 7
- 1) Scavenging is one of the computer _____
a) Virus b) System
c) Program d) Crime
 - 2) Monitoring system transaction is an example of preventing computer _____
a) Virus b) System
c) Program d) Crime
 - 3) System crashes occurs due to _____
a) Virus b) System
c) Program d) crime
 - 4) _____ level is at the bottom of the business information system.
a) Planning b) Operational
c) Behavioural d) Technical
 - 5) Super market store operations is an example of _____ system.
a) Stationary b) Dynamic
c) Super d) Expert
 - 6) _____ function is organized into a departmental or divisional unit.
a) DSS b) IS
c) MIS d) EIS



- 7) EIS stands for _____
- a) Expert Information System b) Executive Information System
c) Executive Intended System d) Executive Innovative System
- b) State **True** or **False** : **7**
- 1) Eaves dropping is one of the computer crime.
2) In appropriate use of data is not a security threat.
3) Write tapping is a special case of eaves dropping.
4) A system does not exist in vacuums.
5) An open system interacts with the environment.
6) Adaptive system doesn't have the ability to change itself or its environment.
7) DSS is an element of MIS.
2. a) Explain characteristics of EIS. **7**
b) Explain the structure of Expert System. **7**
3. a) List the objectives of security information system audit. **7**
b) Write a note on : Phases in Decision Making. **7**
4. a) Explain various Operation Research techniques used in decision making. **7**
b) Write a detail note on : Information system for personnel management. **7**
5. a) Explain Human information processing along with its advantages and disadvantages. **7**
b) What is MIS ? Explain the general structure of MIS. **7**
6. a) What are the different types of information ? Explain the importance of quality of the information. **7**
b) Explain control by exception. **7**
7. Design MIS for Hospital Management. **14**
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**M.C.A. – II (Semester – III) (Commerce) Examination, 2014
DATA STRUCTURE USING C++ (New)**

Day and Date : Tuesday, 2-12-2014
Time : 3.00 p.m. to 6.00 p.m.

Total Marks : 70

- Instructions :** 1) Q. 1 and Q. 7 are **compulsory**.
2) Attempt **any two** questions from Q. 2 to Q. 4.
3) Attempt **any one** question from Q. 5 to Q. 6.
4) Figures to the **right** indicate **full** marks.

1. A) Choose the correct alternative :

8

- 1) When new data are to be inserted into a data structure, but there is no available space; this situation is usually called
 - a) underflow
 - b) overflow
 - c) houseful
 - d) saturated
- 2) A circular list can be used to represent
 - a) dequeue
 - b) queue
 - c) circular queue
 - d) all of the above
- 3) Job scheduling is the application of _____ data structure.
 - a) stack
 - b) queue
 - c) tree
 - d) graph
- 4) Balanced tree is also called as _____ tree.
 - a) AVL
 - b) BST
 - c) Threaded
 - d) Multi-way search
- 5) A _____ is a graph that has weights of costs associated with its edges.
 - a) Network
 - b) Weighted graph
 - c) Both of above
 - d) None of above
- 6) The postfix form of the $a + b * c$
 - a) $abc+*$
 - b) abc^*+
 - c) $ab + c^*$
 - d) $ab^*c +$



7) Which of the following data structures are indexed structures ?

- a) linear arrays
- b) linked lists
- c) both of above
- d) none of above

8) In ascending priority queue _____ element is deleted first.

- a) last
- b) first
- c) largest
- d) smallest

B) State **true** or **false** :

6

- 1) Pre-order tree traversal is faster than in-order tree traversal.
- 2) A binary tree can have maximum two children.
- 3) The operator new is used in C++ to allocate the memory dynamically.
- 4) In de-queue insertion and deletion is possible only from one end.
- 5) The DFS uses stack data structure to hold the nodes.
- 6) Linked list is static data structure.

2. Explain the following terms with example (**any two**) :

14

- 1) Priority Queue
- 2) Threaded Tree
- 3) Representation of Graph.

3. A) Write a C++ program to implement stack using linked list.

7

B) Write a C++ function to add the node at beginning of circular linked list.

7

4. A) Convert INFIX expression to PREFIX form using stack.

$(b*(a + c - d) / e* f/g)$

7

B) What is AVL tree ? Construct an AVL tree for the following :

27, 92, 30, 64, 94, 17, 56, 49, 76, 3, 56 and display it in BFS manner.

7

5. Write a program in C++ to create binary search tree and display tree elements by in-order, pre-order and post-order traversals.

14

6. A) What is Queue ? Explain its different types.

7

B) Write a function in C++ to reverse the queue using stack.

7

7. Write a C++ program to implement single linked list with the following operations :

14

- 1) Creating linked list
- 2) Displaying linked list
- 3) Inserting an element in the linked list
- 4) Deleting an element from linked list.



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M.C.A. Commerce (Part – II) (Semester – III) Examination, 2014
CORE JAVA PROGRAMMING (New)

Day and Date : Thursday, 4-12-2014
Time : 3.00 p.m. to 6.00 p.m.

Total Marks : 70

- Instructions :** 1) Q. No. 1 and 7 are **compulsory**.
2) Solve **any two** questions from Q. No. 2, 3 and 4.
3) Solve **any one** question from Q. No. 5 and 6.

1. Solve following :

14

- 1) Which two are valid constructors for Thread ?
A) Thread (Runnable r, String name)
B) Thread ()
C) Thread (int priority)
D) Thread (Runnable r, Thread Group g)
E) Thread (Runnable r, int priority)
- 2) Which three are methods of the Object class ?
1) notify(); 2) notifyAll(); 3) isInterrupted();
4) synchronized(); 5) interrupt(); 6) wait(long msec);
7) sleep(long msec); 8) yield();
A) 1, 2, 4 B) 2, 4, 5 C) 1, 2, 6 D) 2, 3, 4

3) Class X implements Runnable

```
{  
    public static void main(String args[ ]) { /* Missing code ? */  
    public void run( ) {} }  
}
```

Which of the following line of code is suitable to start a thread ?

- A) Thread t = new Thread(X);
B) Thread t = new Thread (X); t.start();
C) X run = new X(); Thread t = new Thread(run); t.start();
D) Thread t = new Thread(); x.run();

P.T.O.



4) Which three guarantee that a thread will leave the running state ?

- 1) yield() 2) wait() 3) notify()
4) notifyAll() 5) sleep(1000) 6) aLiveThread.join()
7) Thread.killThread()
A) 1, 2 and 4 B) 2, 5 and 6 C) 3, 4 and 7 D) 4, 5 and 7

5) What will be the output of the program ?

```
try { int x = 0; int y = 5/x;}  
catch(Exception e)  
{ System.out.println("Exception");}  
catch(ArithmeticException ae)  
{System.out.println("Arithmetic Exception");}  
System.out.println("finished");
```

- A) Finished B) Exception
C) Compilation fails D) Arithmetic Exception

6) What will be the output of the program ?

```
public class X  
{  
public static void main(String[ ] args)  
{  
try{badMethod( ); System.out.print("A");}  
catch(Exception ex) {System.out.print("B");}  
finally{System.out.print("D");}  
public static void badMethod( )  
{throw new Error( );/*Line 22*/}}  
}
```

- A) ABCD
B) Compilation fails
C) C is printed before existing with an error message
D) BC is printed before exiting with an error message



7) Consider the following class definition

```
class Student extends String { }
```

What happens when we try to compile this class ?

- A) Will not compile because class body is not defined
 - B) Will not compile because the class is not declared public
 - C) Will not compile because String is abstract
 - D) Will not compile because String is final
 - E) Will compile successfully.
- 8) Which of the following statements are true ?
- 1) We cannot use abstract classes to instantiate objects directly.
 - 2) The abstract methods of an abstract class must be defined in its subclass
 - 3) We cannot declare abstract constructors.
 - 4) We may declare abstract static methods.
- A) Line 1 only
 - B) Line 2 only
 - C) Line 1 and line 2 only
 - D) Line 1, line 2 and line 3 only
 - E) All are true

9) classClassA

```
{  
public static void main (String args[ ])  
{ClassB b = classB( );}  
ClassA(int x) { } }  
classClassB extends ClassA { }
```

What will happen when we compile and run this code ?

- A) Compile and run successfully
- B) Error.ClassA does not define a no-argument constructor
- C) Error.ClassB does not define a no-argument constructor
- D) Error.There is no code in the class ClassB
- E) Error.There is no code in the constructor ClassA(int x).



- 10) A package is a collection of
A) classes B) interfaces C) editing tools D) classes and interfaces
- 11) When we invoke repaint() for a component, the AWT invokes the method :
A) draw() B) show() C) update() D) paint()
- 12) Which of the following statement is true ?
A) Unicode characters are all 16 bits
B) UTF characters are all 24 bits
C) Reader class has methods that can read integers and floats
D) File class may not be used to rename a file.
- 13) Which exception is thrown by the read() method of Input Stream class ?
A) Exception B) FileNotFoundException
C) ReadException D) IOException
E) None of the above
- 14) The JDBC-ODBC Bridge supports multiple concurrent open statements per connection.
A) True B) False
2. Write an applet application which will display colours in list box and a scrolling banner which scrolls to right. When user selects any from list, change the colour of scrolling banner ? **14**
3. a) Explain objects serialization with example. **7**
b) Write a program to implement ArrayList class of List collection. **7**
4. a) Differentiate between Byte stream and character stream. Write a program to merge two file. **7**
b) Differentiate between List, Map and Set collection. **7**
5. Explain Life cycle of a thread. Write a program to print string in frame from left-top corner and move the string from top to bottom. **14**
6. Write short notes on : **14**
1) Thread synchronization 2) Autoboxing and Unboxing in Java
3) Try, Catch and Finally 4) Finally clause in Exception Handling.
7. Explain different drivers in java. Write java program to access a database, which has a table, named student whose columns are ID (integer) and Name(text) Access all the records in this table using the jdbc-odbc bridge and display on the screen. **14**
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Seat No.	
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**M.C.A. (Part – II) (Semester – III) Examination, 2014
(Commerce and Management Faculty) (New)
DATA COMMUNICATION AND NETWORKS**

Day and Date : Saturday, 6-12-2014
Time : 3.00 p.m. to 6.00 p.m.

Total Marks : 70

- Instructions :** 1) Q. 1 and Q. 7 are **compulsory**.
2) Attempt **any two** questions from Q. 2 to Q. 4.
3) Attempt **any one** question from Q. 5 to Q. 6.
4) **All** questions carry **equal** marks.

1. A) Select correct alternative :

8

- 1) Size of IPV6 address is _____ bits.
A) 32 B) 128 C) 64 D) 16
- 2) _____ protocol is used to map logical address to physical address.
A) ARP B) RARP C) ICMP D) IP
- 3) SNMP is _____ layer protocol in TCP/IP protocol suite.
A) Network B) Application
C) Transport D) Data link
- 4) In _____ cryptography, same key is used for encryption and decryption.
A) Asymmetric key B) Public key
C) Private key D) Protected key.
- 5) SMTP uses _____ port number.
A) 22 B) 80 C) 21 D) None of these
- 6) In classfull addressing, address space is divided into _____ classes.
A) 3 B) 5 C) 2 D) 4
- 7) In subnet mask all 1 bits represent size of _____
A) Host id B) House id C) IP address D) Network id
- 8) DHCP stands for
A) Dynamic Host Connect Protocol
B) Dynamic Host Configuration Protocol
C) Domain Host Configuration Protocol
D) Dynamic Home Configuration Protocol



- B) Define the following terms (Attempt **any three**) : **6**
- 1) IP address
 - 2) Routing
 - 3) Cryptography
 - 4) Digital Signature.
2. A) Compare OSI and TCP/IP reference models. **7**
B) Explain Ethernet in detail. **7**
3. A) Explain in detail ISDN Network. **7**
B) What is DNS ? How DNS server works ? **7**
4. A) Explain SSL with neat diagram. **7**
B) What is HTTP ? Explain in detail. **7**
5. A) What is SNMP ? Explain SNMP manager and agent in detail. **7**
B) What is DHCP ? How does it work ? Explain. **7**
6. What is Firewall ? Explain different types of firewall. Also explain its advantages. **14**
7. Write a short note on (Attempt **any two**) : **14**
- 1) Telnet
 - 2) Routing algorithms
 - 3) HTTP.
-



Seat No.	
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M.C.A. (Commerce) (Semester – III) Examination, 2014
SOFTWARE PROJECT MANAGEMENT (New)

Day and Date : Tuesday, 9-12-2014
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 70

- Instructions:** 1) Question 1 and Question 7 are **compulsory**.
2) **Any two** questions from Q. 2 to Q. 4.
3) **Any one** question from Q. 5 to Q. 6.

1. A) Multiple choices : **(4x1)**
- 1) Effective software project management focuses on four P's which are
 - a) People, performance, payoff, product
 - b) People, product, performance, process
 - c) People, product, process, project
 - d) People, process, payoff, product
 - 2) The first step in project planning is to
 - a) Determine the budget
 - b) Select a team organizational model
 - c) Determine the project constraints
 - d) Establish the objectives and scope
 - 3) How does a software project manager need to act to minimize the risk of software failure ?
 - a) Double the project team size
 - b) Start on the right foot
 - c) Track progress
 - d) Both b) and c)
 - 4) Software risk always involves two characteristics.
 - a) Fire fighting and crisis management
 - b) Known and unknown risks
 - c) Uncertainty and loss
 - d) Staffing and budget
- B) Answer in **1-2** sentences : **(5x2)**
- 1) What do you mean by Stake Holder ?
 - 2) Write the goals of project management.



- 3) Define Defect management.
- 4) Write any five competencies of project management skills.
- 5) Name five maturity levels of CMM.
2. A) What is meant by Risk management ? **7**
- B) What are the factors must be considered while making the team for software project ? **7**
3. Briefly explain about function points to measure the software size. **14**
4. Explain in detail about Software Configuration Management (SCM) Principles. **14**
5. A) What are the characteristics of performance management in IT Team ? **7**
- B) Discuss the difference between internal risk and external risk. **7**
6. A) Explain in detail about the COCOMO cost estimation model. **7**
- B) What is meant by S/W Project Team ? **7**
7. a) Draw the network diagram for the following : **7**

Activity	Immediate Predecessor	Duration (in week)
A	–	2
B	–	6
C	–	6
D	C	4
E	A	3
F	B	4
G	E	1
H	F,G,J	2
I	A	3
J	D, I	2

- i) Find critical path
- ii) Indicate the total slack time of each activity
- b) List out estimation techniques and explain FPA. **7**
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Seat No.	
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M.C.A. (Part – I) (Semester – I) Examination, 2014
(Commerce and Management Faculty)
C PROGRAMMING

Day and Date : Thursday, 4-12-2014
Time : 11.00 a.m. to 2.00 p.m.

Total Marks : 70

Instructions: 1) **All questions are compulsory.**
2) **Figure to the right indicates full marks.**

1. Fill in the blanks/True-False/Multiple choice : **10**

1) The following directive is used for interaction with compiler _____

- a) #define b) #include c) #pragma d) #line

2) _____ function is used for display the string through graphics.

- a) puts b) cputs c) outtextxy d) putpixel

3) _____ value is associated with NULL macro.

- a) 1 b) 0
c) – 1 d) garbage values

4) By default storage class is _____

- a) auto b) extern c) static d) global

5) Default initial value of storage class is _____

- a) 0 b) 1 c) – 1 d) garbage

6) void main()

{

 int k= –7;

 printf(“%d”,0<!k);

}

- a) print 0 b) print non zero value
c) is illegal d) compiler error



7) Parameter passing mechanism for an array

- a) Call by value
- b) Call by reference
- c) Call by value-result
- d) None of these

8) void main()

```
{  
    int i=107, x=5;  
    printf((x>7) ? "%d" : "%c",i)  
}
```

- a) an execution error
- b) a syntax error
- c) printing of k
- d) none of these

9) void main()

```
{  
    int a=4, b=6;  
    printf("%d", a==b);  
}
```

- a) error message
- b) print 0
- c) print 1
- d) none of these

10) Where can a variables value be stored ?

- a) Only in memory
- b) Only in CPU
- c) Either memory or CPU
- d) Only disk

2. Answer in **1-2** sentences :

(5×2)

- i) What is Array ?
- ii) What is Structure ?
- iii) What is Keyword and Identifier ?
- iv) What is Pointer ?
- v) What is Qualifiers ?



3. Attempt **any four** from following : **(4×5)**
- i) Write a program to print sum of odd number of N.
 - ii) Explain at least any 5 graphics function.
 - iii) Explain the different predefined string functions.
 - iv) Explain how to allocate memory at runtime with example.
 - v) Explain different Storage classes.
 - vi) Explain Random Access file along with its function with example.
4. Attempt **any two** from following : **(2×10)**
- i) Write a program to find the max. and min. element from a matrix.
 - ii) Explain the User Defined data types with examples.
 - iii) Write a program to input number and find a largest digit in a given number
And print it in word with appropriate message.
(e.g. n=5273 “seven is largest”)
5. Write a program of file named Data contains series of integer numbers. Write code a program to read these numbers and then write all ‘odd’ number to a file. To be called ‘Odd’ numbers to a file to be called odd and all even numbers to a File to be called Even.



Seat No.	
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**M.C.A. – II (Sem. – III) (Commerce) Examination, 2014
ADVANCED DATABASE MANAGEMENT SYSTEM (New)**

Day and Date : Thursday, 11-12-2014
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 70

- Instructions:** 1) Q. No. 1 and 7 are **compulsory**.
2) Solve **any two** questions from Q. No. 2, 3 and 4.
3) Solve **any one** question from Q. No. 5 and 6.

1. A) Select correct alternative :

8

- 1) Point query retrieves the tuples from a relation
 - A) Based on particular attribute value within given range
 - B) Based on the primary key value of the relation
 - C) Based on particular attribute value
 - D) All of the above
- 2) Even distribution of tuples across disk is ensure by
 - A) Hash partitioning techniques
 - B) Range partitioning techniques
 - C) Round robin partitioning techniques
 - D) All of the above
- 3) Storing separate copy of database at multiple locations is which of the following ?
 - A) Data Replication
 - B) Horizontal Partitioning
 - C) Vertical Partitioning
 - D) Horizontal and Vertical Partitioning
- 4) Application such as diagnosis, design, predication, interpretation and repair are _____
 - A) Expert system
 - B) Knowledge base
 - C) Decision support system
 - D) None of the above



- 5) Shared nothing is also called as _____
- A) Cluster
 - B) Massively Parallel Processing System
 - C) Both A) and B)
 - D) None of the above
- 6) Round-Robin Strategy Scans the relation in order and send I^{th} Tuple to disk number
- A) $D_i \text{ mod } n$
 - B) $D_i \text{ mod } d$
 - C) $D_i \text{ mod } 2$
 - D) None of these
- 7) You can use _____ to list all the existing databases in the MySQL.
- A) Show databases
 - B) Use databases
 - C) Display databases
 - D) All of above
- 8) Select $1 + '99'$ this query will return
- A) 100
 - B) Error
 - C) 1
 - D) 99

B) State **true** or **false** :

6

- 1) Mobile database typically involve three parties fixed hosts, mobile units and base stations.
- 2) One-dimensional lines or polylines are used for geographical features that cover a particular area of the earth's surface.
- 3) Addition of new nodes need not requires reorganization in shared nothing architecture.
- 4) Point query is easy in hash data partitioning.
- 5) Difference in software is a major problem for transaction processing in homogenous distributed database.
- 6) Read lock on the data item means exclusive locking.

2. A) What is Inter-query and Intra query parallelism ? Explain in detail with example. 7

B) What is DDBMS ? Explain types of DDBMS. 7



- 3. A) What is Knowledge base system ? Explain architecture of knowledge base system. 7
 - B) Explain different component of GIS. 7
 - 4. A) Explain structured types and inheritance in SQL. 7
 - B) Explain mobile computing architecture. 7
 - 5. A) What is Parallel Database ? Explain architecture of parallel database. 7
 - B) Explain concurrency control and recovery in distributed database. 7
 - 6. A) What is Join ? Explain different types of join in MySql. 7
 - B) Explain different types of GIS data. 7
 - 7. Write a short note on (**any 2**) : 14
 - A) Spatial Database
 - B) Comparing RDBMS, OODBMS
 - C) Integration of expert in database
 - D) Data partitioning.
-



Seat No.	
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**M.C.A. (Commerce) (Semester – IV) Examination, 2014
JAVA PROGRAMMING**

Day and Date : Wednesday, 3-12-2014
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 70

Instructions : 1) Q. No. 1 and 7 are **compulsory**.
2) Solve **any two** questions from Q. No. 2, 3 and 4. Solve **any one** question from Q. No. 5 and 6.
3) Figure to the **right** indicates **marks** to a question or sub question.

1. A) Choose the correct alternative : 4
- 1) Which keyword is used to define the constants in an interface ?
a) super b) public c) private d) final
 - 2) What is the access specifier of the methods declared in an interface ?
a) default b) private c) protected d) public
 - 3) We can use _____ to test our assumption about programs.
a) assertion b) exception c) both a) and b) d) none
 - 4) _____ sends requests to and retrieves result from a database.
a) Connection b) Statement c) ResultSet d) next()
- B) Identify the output of the following snippets : 6
- 1) How many objects will be created in the following code ?
String s1="Welcome";
String s2="Welcome";
String s3="Welcome";
 - 2) class exp {
public static void main (String[] args) {
try
{ return; }
finally
{ System.out.println("Finally"); }
}
}



```
3) StringBuffer sb = new StringBuffer ("Hello");
   System.out.println("buffer = " + sb);
   System.out.println("length = " + sb.length() );
   System.out.println("capacity = " + sb.capacity() );
```

C) Answer in **1-2** sentences : **(4×1)**

- a) Define Auto boxing.
- b) Methods of applet life cycle.
- c) What are JDK, JRE and JVM ?
- d) What is the difference between notify () and notifyAll() ?

2. Attempt the following : **(2×7)**

- i) Explain JDBC Resultset with methods and fields.
- ii) Write a Simple Server program to implement UDP network which sends a simple message to the client.

3. Attempt the following : **(2×7)**

- i) What is a Layout Manager ? Explain any 4 layout managers.
- ii) What is Thread ? Explain thread life cycle.

4. Write short note on callable statement : **(2×7)**

- i) Explain Beans persistence and introspection in detail.
- ii) Write an applet to welcome the user by his name. The user's name should be accepted by the HTML parameter.

5. Write a JDBC Program for e-mail registration with user id, password, name, dob, address fields (Declare and assume the values). If any user exists with same user id give proper message. Otherwise welcomes user with message containing his/her user id and password. **(1×14)**

6. Explain architecture of RMI and write an RMI application to greet the user with the present system date. **(1×14)**

7. Short notes (**any 2**) : **(2×7)**

- a) Abstract class and interface
 - b) TCP/IP and UDP socket programming
 - c) Serialization
 - d) Exception handling.
-



Seat No.	
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**M.C.A. (Commerce) (Part – II) (Semester – IV) Examination, 2014
SOFTWARE TESTING AND QUALITY ASSURANCE**

Day and Date : Friday, 5-12-2014
Time : 3.00 p.m. to 6.00 p.m.

Total Marks : 70

Instructions : 1) Q. No. 1 and 7 are **compulsory**.
2) Solve **any two** questions from Q. No. 2, 3 and 4.
3) Solve **any one** question from Q. No. 5 and 6.

1. A) Choose the correct alternative from the given alternatives : 10
- 1) The activity which includes confirming understanding, brainstorming and testing ideas is a
 - a) Code walkthrough
 - b) Inspection
 - c) Review
 - d) Structured walkthrough
 - 2) Acceptance test is known as _____
 - a) Alpha testing
 - b) Beta testing
 - c) White box testing
 - d) None of these
 - 3) Boundary value analysis belong in which testing techniques ?
 - a) Black box testing
 - b) White box testing
 - c) Gray box testing
 - d) None of these
 - 4) What are the type of integration testing ?
 - a) Top-Down testing
 - b) Bottom-Up testing
 - c) Big Bang testing
 - d) All the above
 - 5) Retesting the entire application after a change has been made is called _____
 - a) Full regression testing
 - b) Unit regression
 - c) Regional regression
 - d) Retesting



6) Which is black box testing method ?

- a) Equivalence partition
- b) Code coverage
- c) Fault identification
- d) None of these

7) Validation is _____

- a) Product based
- b) Process based
- c) Project based
- d) None of these

8) Which is the Non-Functional Testing techniques ?

- a) Unit testing
- b) Performance Testing
- c) Regression testing
- d) All the above

9) This type of testing – user will be able to understand and interact with the system.

- a) Usability testing
- b) Acceptance testing
- c) Alpha testing
- d) None of these

10) Which of these term as level of Capability Maturity Model ?

- a) Defined
- b) Initial
- c) Repeatable
- d) All of above

B) State whether **true** or **false**.

4

1) Product risk affects the quality or performance of software.

2) Alpha testing will be done at user site.

3) Earlier a defect is found the cheaper it is to fix it.

4) Load testing is type of functional testing.

2. a) What are the McCall's software quality factors ?

7

b) Explain 11 steps of testing process.

7

3. a) Differentiate Manual Vs Automated Testing.

7

b) What is test case ? Explain content of test case with example.

7



- | | |
|---|----|
| 4. a) What is SQA ? Explain Software Quality Metrics. | 7 |
| b) Explain coverage testing. | 7 |
| 5. a) Explain non-functional testing techniques. | 7 |
| b) Explain software reliability measures. | 7 |
| 6. a) Explain black box testing techniques. | 7 |
| b) Explain validation testing activities. | 7 |
| 7. Write short note on (any 2) : | 14 |
| a) Unit and integration testing. | |
| b) Computer Aided Software testing Tool (CAST). | |
| c) Acceptance and regression testing. | |
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Seat No.	
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M.C.A. – II (Semester – IV) (Commerce) Examination, 2014
OBJECT ORIENTED ANALYSIS AND DESIGN

Day and Date : Monday, 8-12-2014
Time : 3.00 p.m. to 6.00 p.m.

Total Marks : 70

- Instructions :** 1) Question number 1 and 7 compulsory.
2) Solve **any two** questions from 2, 3 and 4.
3) Solve **any one** question from question number 5 and 6.

1. A) Fill in the blanks :

7

- 1) Associations are _____
 - a) Unidirectional
 - b) Bi-directional
 - c) Tri-directional
 - d) None of the above
- 2) _____ is a run-time physical object that represents a computational resource.
 - a) Parameter
 - b) Stereotype
 - c) Node
 - d) None of the above
- 3) Collaboration diagrams were adapted from _____
 - a) Your don
 - b) Rumbaugh
 - c) Booch
 - d) None of the above
- 4) Parameterized collaboration is also known as _____
 - a) Use-case diagram
 - b) Collaboration template
 - c) Frameworks
 - d) None of the above
- 5) _____ methodology is divided into subject, object, structures, attributes and services.
 - a) Booch
 - b) Coad Yourdon
 - c) Ivar Jacobson
 - d) Rumbaugh
- 6) OOD was introduced is introduced by _____
 - a) Grady Booch
 - b) Rumbaugh
 - c) Ivar Jacobson
 - d) Coad Yourdon
- 7) CRC stands for _____
 - a) Class-responsibility-collaboration
 - b) Class-responsibility-components
 - c) Class-responsibility-comparison
 - d) None of these



- B) True/false :** **7**
- 1) A permission is a kind of association.
 - 2) Late Binding decide on run-time.
 - 3) OOSE was developed by Grady Booch.
 - 4) Include is compulsory, extends is optional.
 - 5) + is used for protected in a class diagram.
 - 6) Class diagram is used to show the static view.
 - 7) The horizontal line represents the object's lifeline in sequence diagram.
2. a) Explain the term UML with its objectives of modeling. **7**
 b) Explain common class pattern approach with suitable example. **7**
3. a) Draw sequence diagram for money withdraw from ATM system. **7**
 b) Explain the Noun Phrase Approach in identifying classes, with example. **7**
4. a) Explain the multi-tiered architecture. **7**
 b) Discuss the impact of object orientation on testing. **7**
5. Explain the Activity diagram using swimlanes. Give a suitable example. **14**
6. a) Discuss the steps evolved in Requirements engineering. **7**
 b) Draw the use case diagram for following case study. **7**
- Once a campaign is established, it is assigned a manager and staff. Authorisation in the form of a signed contract and an authorisation code is required to kick-off an established campaign. Once a campaign is started it is noted as active. On completion of an active campaign, accountability is carried out in the form of preparation of final statements. Once payment is received in full, a campaign is considered paid, is archived and any assigned personnel is released. If payment is only effected in part, the campaign is not considered paid but rather simply completed. If any payments were effected in advance of campaign completion and are in excess of the final payment request, a refund should be issued.
7. What is Object Oriented Analysis and Design ? Explain RUP in detail. **14**
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Seat No.	
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**M.C.A. Commerce (Part – II) (Semester – IV) Examination, 2014
OPTIMIZATION TECHNIQUES**

Day and Date : Wednesday, 10-12-2014
Time : 3.00 p.m. to 6.00 p.m.

Total Marks : 70

- Instructions :** 1) Q. No. 1 and Q. No 7 are **compulsory**.
2) Attempt **any two** questions from Q. No. 2 to Q. No. 4.
3) Answer **any one** question from Q. No. 5 and Q. No. 6.
4) **All** questions carry **equal** marks.

1. A) Select the correct alternative :

7

- 1) Branch and Bound method is used for _____
 - a) Transportation problem
 - b) LPP
 - c) IPP
 - d) Assignment problem
- 2) The slack for activity is equal to _____
 - a) LF-LS
 - b) EF-ES
 - c) LS-ES
 - d) None of the above
- 3) When the total supply is equal to total demand in a transportation problem, the problem is said to be
 - a) Unbalanced
 - b) Balanced
 - c) Degenerate
 - d) None of these
- 4) Customer behavior in which customer moves from one queue to another in a multiple channel situation is _____
 - a) Bulking
 - b) Reneging
 - c) Jockeying
 - d) Alternating
- 5) Linear programming is a
 - a) Constrained optimization technique
 - b) Technique for economic allocation for limited resources
 - c) Mathematical technique
 - d) All of these
- 6) The decision making criterion that should be used to achieve maximum long-term payoff is _____
 - a) EMV
 - b) Hurvicz
 - c) EOL
 - d) Maximax
- 7) In two-phase method _____ variable is never considered fore-entry into the basis.
 - a) Surplus
 - b) Artificial
 - c) Slack
 - d) None of these



1. B) State **true** or **false** :

7

- 1) In decision theory a course of action is called an alternative.
- 2) If the unit cost rises, then optimal order quantity increases.
- 3) In crashing the project duration of non-critical activity is reduced.
- 4) Integer programming is an extension of the linear programming in which feasible solution must have integer solution.
- 5) While solving a LP model graphically the area bounded by the constraints is called bounded region.
- 6) Event is the point in time that marks the beginning or ending of an activity.
- 7) First come first served is priority queue discipline.

2. 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 if the cost per order is Rs. 15 and the inventory charges per year are 20 paise.

7

B) What is dual of linear programming problem ? Write the dual of given LP problem

$$\text{Minimize } Z = x_2 + 3x_3$$

Subject to

- i) $2x_1 + x_2 \leq 3$
- ii) $x_1 + 2x_2 + 6x_3 \geq 5$
- iii) $-x_1 + x_2 + 2x_3 = 2$ and $x_1, x_2, x_3 \geq 0$.

3. A) Find the initial basic feasible solution by using VAM for following problem :

7

	A	B	C	D	Supply
I	2	4	6	11	50
II	10	8	7	5	70
III	13	3	9	12	30
IV	4	6	8	3	50
Demand	25	35	105	20	



B) The standard weight of a special purpose brick is 5 kg and it contains two basic ingredients B_1 and B_2 . B_1 costs Rs. 5/kg and B_2 costs Rs. 8/kg. Strength considerations dictate that the brick contains not more than 4 kg of B_1 and a minimum of 2 kg of B_2 . The demand for the product is likely to be related to the price of the brick. Formulate the problem for minimum cost of brick satisfying above conditions. 7

4. A) A person repairing radios finds that the time spent on the radio sets has exponential distribution with mean of 20 minutes. If the radios are repaired in the order in which they come in and their arrival is approximately Poisson with an average rate of 15 for 8-hours day, what is the repairman's expected idle time each day ? How many jobs are ahead of the average set just brought in ? 7

B) Write short notes on :

- i) Dummy activity
- ii) Total float
- iii) Free float. 7

5. A) A construction company has requested bids for subcontracts on five different projects. Five companies have responded. Their bids are represented below :

Bid Amount ('000)

Bidders	A	B	C	D	E
I	41	72	39	52	25
II	22	29	49	65	81
III	27	39	60	51	40
IV	45	50	48	52	37
V	29	40	45	26	30

Determine the minimum cost assignment of subcontracts to bidders, assuming that each bidder can receive only one contract. 7

B) What is Decision Theory ? Explain Decision making under risk in detail. 7



6. Solve following problem by using two-phase method.

14

$$\text{Maximize } Z = 5x_1 + 3x_2$$

$$\text{Subject to } 2x_1 + x_2 \leq 1$$

$$x_1 + 4x_2 \geq 6 \text{ and } x_1, x_2 \geq 0.$$

7. Given the following information regarding a project as activities and estimates of the optimistic, most likely and pessimistic times (in days) for completion of the various activities.

14

Activity	Time estimates (in days)		
	Optimistic	Most likely	Pessimistic
1 – 2	2	5	14
1 – 3	9	12	15
2 – 4	5	14	17
3 – 4	2	5	8
3 – 5	6	9	12
4 – 5	8	17	20

- Draw a network diagram
 - Determine the critical path
 - Determine the expected project completion time
 - What is probability that project will be completed in 30 days ?
-



Seat No.	
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**M.C.A. (Part – I) (Semester – I) Examination, 2014
(Commerce and Management)
DATABASE MANAGEMENT SYSTEM**

Day and Date : Saturday, 6-12-2014
Time : 11.00 a.m. to 2.00 p.m.

Total Marks : 70

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

1. A) Multiple choice questions : 5
- 1) Create, Alter, Drop are examples of _____
 - a) DDL
 - b) DML
 - c) VDL
 - d) All of these
 - 2) A _____ can be identified uniquely only by considering the primary key of another entity.
 - a) Candidate key
 - b) Weak entity
 - c) Strong entity
 - d) None of the above
 - 3) _____ data models provide concepts that describe details of how data is stored in the computer.
 - a) Physical level
 - b) View level
 - c) Logical level
 - d) All of these
 - 4) _____ is defined as the number of entities associated with the relationship.
 - a) Cardinality
 - b) Relational Algebra
 - c) Both a) and c)
 - d) Degree of Relationship
 - 5) A _____ is a specific Boolean expression.
 - a) Procedure
 - b) Trigger
 - c) Cursor
 - d) Index
- B) State whether **True** or **False** : 5
- 1) All functions performed by constraints can equally be performed by triggers.
 - 2) Both an SQL query as well as a PL/SQL code is interpreted in Oracle.



- 3) DDL operations, once performed are automatically committed and do not require any commit statement for Confirmation.
- 4) Views are the logical tables of data extracted from existing tables.
- 5) DBMS is intermediate layer between programs and data.

2. Answer in **1-2** sentences : **(5×2)**
- i) Entity
 - ii) Derived attribute
 - iii) Functional dependency
 - iv) Foreign key
 - v) Weak entity.
3. Attempt **any four** from following : **(4×5)**
- i) Generalization
 - ii) Codd's Rule
 - iii) RAID
 - iv) Deadlock
 - v) Data Dictionary
 - vi) Remote Backup System.
4. Attempt **any two** from following : **(2×10)**
- i) How data security and privacy is maintained ? Explain Encryption in detail.
 - ii) Explain in detail Concurrency Control with Locking Techniques.
 - iii) Explain Data Recovery in detail and role of Atomicity in it.
5. Explain the following commands with example : **(1×10)**
- a) INSERT
 - b) GROUPBY
 - c) CREATE INDEX, DROP INDEX
 - d) CREATEVIEW
 - e) COUNT
 - f) ALTER.

Consider the table structure Employee as follows :

Employee(emp_id, emp_name, emp_address, emp_dept, emp_designation, emp_email).



Seat No.	
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M.C.A. – II (Semester – IV) (Commerce) Examination, 2014
BM Elective : ENTERPRISE RESOURCE MANAGEMENT

Day and Date : Friday, 12-12-2014
Time : 3.00 p.m. to 6.00 p.m.

Total Marks : 70

- Instructions:** 1) *Question No. 1 and 7 are compulsory.*
2) *Attempt **any two** questions from question number 2, 3 and 4.*
3) *Attempt **any one** question from question number 5 and 6.*
4) ***All** questions carry **equal** marks.*

1. A) Choose correct alternative from the given alternatives : **10**
- ERP packages are mostly used in _____
A) ORACLE B) SQL
C) OOP D) JAVA
 - _____ is a choice between two or more alternatives.
A) Search B) Sort
C) Selection D) Decision
 - Technical staff will attend to respond to feasibility questions as they arise and to improve their understanding of the _____ EIS.
A) MIS B) EIS
C) DSS D) ES
 - _____ is a collection of data designed to support management decision making.
A) Meta Data B) Data Mining
C) Data Warehouse D) Data Dictionary
 - Extraction of hidden predictive information from large databases is called _____
A) Searching B) Findings
C) Analysis D) Data mining
 - _____ improves the flow of materials through an organization’s supply chain by managing planning, scheduling, procurement and fulfillment for optimum service levels and maximum profitability.
A) BPR B) SCM
C) CRM D) All of these

P.T.O.



- 7) An _____ is a set of hardware and software based tools that automate the process of tracking inventory.
 - A) MIS
 - B) MSS
 - C) Inventory Control System
 - D) Management Control System
- 8) Most Inventory management system support inventory methods like _____
 - A) Periodic inventory
 - B) Continuous inventory
 - C) Inventory sampling
 - D) All of these
- 9) The process described in the quality manual can be implemented and automated in the _____
 - A) EDP
 - B) Quality Management
 - C) Material Management
 - D) None of these
- 10) The _____ process should eliminate those packages that are not at all suitable for the company’s business process.
 - A) Package Evaluation
 - B) Project Planning
 - C) Gap Analysis
 - D) Pre-Evaluation Screening

- B) Define the terms : 4
 - 1) Supply Chain Management.
 - 2) Executive Support System.
 - 3) Online Transaction Processing.
 - 4) Executive Information System.
 - 2. A) Explain need of ERP and its advantages. 7
B) Explain data mining with its architecture. 7
 - 3. A) Explain the factors affecting Quality Management of ERP. 7
B) Explain the importance of Team Training and Testing. 7
 - 4. A) How ERP market gets affected on the Business ? Explain. 7
B) Describe material management module of an ERP package. 7
 - 5. A) Explain Big-Bang strategy of ERP implementation. 7
B) Explain different hidden cost involved in ERP implementation. 7
 - 6. Explain Inventory Control and Finance Production module with example. 14
 - 7. Explain ERP Implementation Life Cycle. 14
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Seat No.	
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**M.C.A. (Part – III) (Semester – V) Examination, 2014
(Commerce and Management Faculty)
HUMAN COMPUTER INTERFACE**

Day and Date : Tuesday, 2-12-2014
Time : 11.00 a.m. to 2.00 p.m.

Total Marks : 70

- Instructions:** 1) Q. 1 and Q. 7 are **compulsory**.
2) Attempt **any two** questions from Q. 2 to Q. 4.
3) Attempt **any one** question from Q. 5 to Q. 6.
4) Figures to the **right** indicate **full** marks.

1. A) Fill in the blanks : 8
- 1) CSCW stands for _____
 - 2) The photo search in information search and visualization is done by _____
 - 3) In _____ user selects object first and performs actions to achieve objectives.
 - 4) _____ manual, information available whenever the computer is available.
 - 5) A correct matching pair is a technique to reduce _____ in data entry.
 - 6) _____ were used by stock market traders.
 - 7) The primary mode of textual data entry is _____
 - 8) _____ describes the interaction between user and object visually.
- B) State **True** or **False** : 6
- 1) Shorter system response time may lead to generate errors.
 - 2) In guide line review method expert reviewers reviews interface with eight golden rules.
 - 3) Dialog box is a special window which is a combination of menu and form filling design technique.
 - 4) The goal of interface design is to provide the best way for developer to interact with computer.
 - 5) Decision room is example of same place same time co-operation system.
 - 6) Acceptance testing is a black box testing.



2. a) Explain GOMS and KLM model in detail. 7
 - b) What are the four sources of motivation human factors for design ? 7
 3. a) Explain three pillars of interface design. 7
 - b) What are the good features in designing form filling ? 7
 4. a) List and explain steps of usability testing. What are some of the limitations of such testing. 7
 - b) Explain window design with windows interface objects in detail. 7
 5. a) Describe eight golden rules of user interface design. 7
 - b) Compare and contrast online help and offline help. 7
 6. a) Explain applications of asynchronous interaction and synchronous distributed interaction in cooperative work. 7
 - b) Discuss the four design issues that are referred as balancing functions in good HCI design. 7
 7. Write a short notes on (**any two**) : 14
 - a) Participatory design
 - b) Response time
 - c) Error message guidelines.
-



Seat No.	
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**M.C.A. (Commerce) (Part – III) (Semester – V) Examination, 2014
SOFTWARE IT PROJECT MANAGEMENT**

Day and Date : Thursday, 4-12-2014
Time : 11.00 a.m. to 2.00 p.m.

Max. Marks : 70

- Instructions:** 1) Q. 1 and Q. 7 are **compulsory**.
2) Attempt **any two** questions from Q. 2 to Q. 4.
3) Attempt **any one** questions from Q. 5 to Q. 6.
4) Figures to the **right** indicate **full** marks.

1. A) Select the correct alternatives : **10**
- 1) Extent to which the program satisfies and fulfills the customers mission objectives is achieved by
 - a) usability
 - b) correctness
 - c) timeliness
 - d) efficiency
 - 2) The totality of features and characteristics of a product or service that bear on its ability to satisfy specified or implied needs is called _____
 - a) Quality
 - b) LOC
 - c) KLOC
 - d) VAF
 - 3) _____ refers to temporary and unique attempt undertaken to create a product or service.
 - a) project
 - b) programme
 - c) events
 - d) responsibilities
 - 4) Users role not involved in system implementation
 - a) acquire resources
 - b) train personnel
 - c) provide necessary resources for assuring quality
 - d) maintain system
 - 5) _____ refer to the data that come from outside the application boundary.
 - a) Internal inputs
 - b) External outputs
 - c) External inputs
 - d) External enquiry



- 6) UFP stands for
- Unadjusted Function Points
 - Usability Function Points
 - User Function Points
 - Unified Function Points
- 7) Methodologies are expected to be _____ i.e. their use by different persons will lead to similar results.
- Not repeatable
 - Not adjustable
 - Adjustable
 - Repeatable
- 8) _____ refers to a set of configuration items which together depict a project milestone or a product version.
- Rearline
 - Baseline
 - Lastline
 - Firstline
- 9) _____ is the responsibility of forming a steering committee.
- System analyst
 - Management
 - Team leader
 - Users
- 10) Once the existence of the error is known, it is necessary to locate it and fix it, this is referred to as _____
- forecasting
 - designing
 - partitioning
 - debugging

B) State **true** or **false** :

4

- Function point analysis is the only well known method that does not use lines-of-code approach.
 - Data Function Types (DFT's) represent the functionality provided to the user to meet the internal and external data requirements.
 - Project stakeholders refer to entities which are actively involved and/or directly affected (Positively or negatively) by the project.
 - A project manager must forget that software projects are people intensive.
2. a) Define defect. Explain in detail role of testing in software development. 7
- b) Explain in detail quality assurance and standards. 7
3. a) Explain in detail Delphi cost estimation technique. 7
- b) Explain in detail characteristics of performance management. 7



- 4. a) Explain in detail steps involved in planning a software project. **7**
 - b) Explain in detail function point analysis. **7**
 - 5. a) Explain in detail advantages of PERT. **7**
 - b) Explain role of microsoft project. **7**
 - 6. Explain in detail phases of project management life cycle. **14**
 - 7. a) Explain in detail user role in system implementation. **7**
 - b) Define the following terms : **7**
 - i) Project management
 - ii) Program size
 - iii) Software Quality
 - iv) Faults
 - v) Software configuration management
 - vi) Failures
 - vii) Errors.
-



Seat No.	
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**M.C.A. (Part – III) (Semester – V) Examination, 2014
(Commerce and Management Faculty)
EMERGING TRENDS IN IT**

Day and Date : Saturday, 6-12-2014
Time : 11.00 a.m. to 2.00 p.m.

Total Marks : 70

- Instructions:** 1) Q. 1 and Q. 7 are **compulsory**.
2) Attempt **any two** questions from Q. 2 to Q. 4.
3) Attempt **any one** questions from Q. 5 and Q. 6.
4) Figures to the **right** indicate **full** marks.

1. Define the following terms : 14
 - a) Firmware b) Expert system
 - c) Activation function d) Fuzzy set
 - e) Tacit Knowledge f) Training
 - g) Biometric.
2. a) What is Neural Network ? List and explain various applications of Neural Network. 7
b) Explain Fingerprint Identification in detail. 7
3. a) What is Embedded System ? Explain the applications of embedded system. 7
b) Explain Biological Neuron Model in detail. 7
4. a) Define knowledge management. Also explain knowledge management components. 7
b) What is Machine Learning ? Explain applications of Machine Learning. 7
5. What is Fuzzy Inference System ? Explain all components of Fuzzy Inference System. 14
6. What is Learning ? Explain different types of learning techniques used for training the Neural Network. 14
7. Write a short note on (**any two**) : 14
 - 1) DNA
 - 2) E-Banking
 - 3) Palm Devices.



Seat No.	
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**M.C.A. (Semester – V) (Commerce and Management) Examination, 2014
ADVANCED INTERNET TECHNOLOGY**

Day and Date : Tuesday 9-12-2014
Time : 11.00 a.m. to 2.00 p.m.

Total Marks : 70

- Instructions :** 1) Q. No. 1 and 7 are **compulsory**.
2) Solve **any two** questions from Q. No. 2, 3 and 4.
Solve **any one** question from Q. No. 5 and 6.
3) Figure to the **right** indicates **marks** to a question or sub question.

1. A) Choose the correct alternative :

7

- 1) The _____ protocol has four phases : initiation, purchase, authorization and capture.
a) SET b) FTP c) HTTP d) None
- 2) RequestDispatcher object is used _____
a) to include other resources b) to include an image
c) to include xml object d) to include e-mailing response
- 3) The life cycle of a servlet is managed by
a) servlet context
b) servlet container
c) the supporting protocol (such as http or https)
d) all of the above
- 4) In PHP constructors do not necessarily have to be the same name as the class name. (True/False)
- 5) In JSP _____ action is used to execute an applet.
a) <jsp:include> b) <jsp:forward>
c) <jsp:param> d) <jsp:plugin>
- 6) _____ status code in HTTP 1.0 indicates that the requested resource is not found, possibly because it has been removed from the server.
a) 400 b) 404 c) 500 d) 200
- 7) In PHP _____ method is used to check if session variable is already set or not for managing session.
a) isstart() b) isset()
c) session_start() d) \$_session



- B) Answer in **one** sentence : **7**
- 1) What is the main difference between `<jsp:include page = ... >` and `<%@ include file = ... >` ?
 - 2) What is the role of JSP in MVC Model ?
 - 3) What is Associative array in PHP ?
 - 4) What is the difference between the scriptlet tag and expression tag ?
 - 5) What are the life cycle methods in JSP ?
 - 6) What is the use of `print_r()` in PHP ?
 - 7) How many servlet config and servlet context objects are present in one application ?
2. i) What is RequestDispatcher in servlet explain with an example ?
ii) Explain implicit JSP objects in detail. **(7×2)**
3. i) What are the features of Payment methods ? Explain 4C Payment methods.
ii) How to send a mail in PHP explain with example ? **(7×2)**
4. i) Explain Custom Tag in JSP.
ii) Create a function in PHP to connect to a database and create a table. **(7×2)**
5. Write a JSP code to create a Registration application that takes email id from the user and searches the record from database and display user a form for modifying his details such as address, city, pin, phone no. and email id and display the changes on another page. **14**
6. Write a PHP program to accept login name and password from user and display appropriate message like “valid”, “invalid” password on the same page (use database). If verification is true manage session for the next page which stores the full registration details in another table. **14**
7. Short notes (**any 4**) : **14**
- a) Error handling in JSP
 - b) Servlet vs. CGI.
 - c) HTTP Request and Response.
 - d) Writing a thread safe Servlet.
 - e) Object oriented PHP.
-



VII) _____ involves copyright owners asserting expansive trademark rights in order to take ownership of a domain from its rightful owner.

- a) tempering
- b) reverse hijacking
- c) cyber squatting
- d) hacking

VIII) Destroys or deletes or alters any information residing in a computer resource is _____

- a) tempering
- b) theft
- c) hijacking
- d) hacking

B) Define following : 6

- I) Decryption
- II) Domain name
- III) Tempering of data.

2. A) Explain object and scope of IT Act. 14

B) What is need and power of Certifying Authority ?

3. A) Demonstrate the relation between E-governance and I.T. Act 2000. 14

B) Explain Spamming and Framing.

4. A) Explain RSA algorithm. 14

B) Explain Digital Signature and PKI.

5. Explain cryptography and different cryptography algorithm. 14

6. Explain different Cyber Crimes. 14

7. What is digital signature ? Write the steps for creating and verifying digital signature. 14



Seat No.	
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M.C.A. – III (Semester – V) Examination, 2014
(Commerce and Management Faculty)
IT Elective : PROGRAMMING LANGUAGE PARADIGMS

Day and Date : Thursday, 11-12-2014
Time : 11.00 a.m. to 2.00 p.m.

Max. Marks : 70

- Instructions:** 1) Q. 1 and Q. 7 are **compulsory**.
2) Solve **any two** questions from Q. 2, Q. 3 and Q. 4.
3) Solve **any one** from Q. 5 and Q. 6.
4) Figures to **right** indicate **marks** to a question or sub question.

1. A) Choose correct alternative : **10**
- 1) A _____ is a class of data objects together with a set of operations for creating and manipulating them.
a) Datatype b) Datavalue c) Identifier d) None of these
 - 2) Microprogram simulation of computer is sometimes called as _____
a) Permutation b) Communication
c) Commulation d) Emulation
 - 3) Logically, we may divide translation into two parts : _____ of source program and synthesis of object program.
a) Analysis b) Simulation
c) Optimization d) Linking
 - 4) _____ is a translator that executes a program one statement at a time directly.
a) Assembler b) Preprocessor
c) Interpreter d) Compiler
 - 5) An _____ data object is data object which has *l*-value with no corresponding *r*-value.
a) Integer b) Uninitialized
c) Equivalent d) Usable



- 6) A _____ theory deals with classifying entities in into sets called types.
- a) Set b) Relativity c) Type d) Write
- 7) In expression involving operations at the same level in the hierarchy, an additional implicit rule is needed to completely define order of operation is called _____
- a) Sequence b) Level
c) Associativity d) Precedence
- 8) The pointer to the current executing instruction known as _____ pointer.
- a) This b) Current instruction
c) Current environment d) Pointer to function
- 9) If we can detect all type errors statically in a program we say that language is _____ typed.
- a) Mixed b) Loosely
c) Flexible d) Strongly
- 10) _____ sequence control structures are those depended by the language to be in effect unless modified by the programmer through some explicit structure.
- a) Simple b) Implicit
c) Explicit d) None of these

B) State **true** or **false** :

4

- a) A data table is one of the central data structure in every translator which contains an entry for each different identifier encountered in source program.
- b) The ordering of characters in character set is called collating sequence.
- c) A direct access file organized so that any single component may be accessed random.
- d) Static type checking is run time type checking usually performed immediately before the execution of particular operation.



2. Solve the following : **14**
 - a) Explain the synthesis of object program.
 - b) Explain various Scalar Data Types.

 3. Solve the following : **14**
 - a) Define a subprogram. Explain in detail association and referencing environment.
 - b) Explain in detail retention and deletion of local data.

 4. Explain the following in detail : **14**
 - a) Syntactic elements of language.
 - b) Integer numeric data type with its three storage representations.

 5. Solve the following : **14**
 - a) Explain string with its various storage representations.
 - b) Explain all elements of program those requiring storage.

 6. Write a note on : **14**
 - a) Fixed sized elements storage on heap.
 - b) Java language elements.

 7. Solve the following : **14**
 - a) Define sequence. Explain implicit and explicit sequence control.
 - b) Explain structure of compiler.
-



13) The STREAMS mechanism is provided by system V as a general way to interface communication drivers into the kernel.

- A) True
- B) False

14) Each IPC structure in the kernel is referred to by a nonnegative integer

- A) Key
- B) Identifier
- C) Value
- D) None of above

- 2. a) Explain File Locking. 7
 - b) Explain record locking. 7
 - 3. a) Write a note on Locks. 7
 - b) What is difference between Swapping and Paging ? 7
 - 4. a) Explain File Sharing. 7
 - b) Explain buffering in Unix. 7
 - 5. Explain IPC's pipe concept in detail with example. 14
 - 6. Explain different system calls in detail. 14
 - 7. Explain the UNIX architecture with block diagram. 14
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Seat No.	
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**M.C.A. (Part – III) (Semester – V) Examination, 2014
(Commerce and Management Faculty)**

IT Elective : WIRELESS MOBILE COMPUTING

Day and Date : Thursday, 11-12-2014
Time : 10.00 a.m. to 2.00 p.m.

Total Marks : 70

- Instructions :** 1) Q. No. 1 and 7 are **compulsory**.
2) Solve **any two** questions from Q. No. 2, 3 and 4. Solve **any one** question from Q. No. 5 and 6.
3) Figure to the **right** indicate **marks** to a question or sub question.

1. Choose correct alternative : **14**
- 1) Each group of eight time slots is called a _____ frame, which is transmitted every 4.615 ms.
A) TDMA B) CDMA
C) FDMA D) SDMA
 - 2) _____ are used to transfer signals to and from the cell phone.
A) Infrared Waves B) Electro-Magnetic Waves
C) Radio Waves D) None of above
 - 3) In _____ , current resources are released before new resources are used
A) Soft handoff B) Hard Handoff
C) Inter-cell Handoff D) Intra-cell Handoff
 - 4) _____ is the termination point of a tunnel toward a mobile node, for datagrams forwarded to the mobile node while it is away from home.
A) Home address B) Link Layer Address
C) MAC Address D) Care-of-Address
 - 5) _____ occurs when a cracker is able to listen in on network traffic and identify the MAC address of a computer with network privileges.
A) IP spoofing B) Sniffing
C) MAC spoofing D) None of above



- 6) The MS and the BSS communicate across the Um interface, also known as the _____
- | | |
|---------------|-----------------|
| A) Uplink | B) Downlink |
| C) Radio link | D) All of above |
- 7) The _____ contains all the administrative information of each subscriber registered in the corresponding GSM network, along with the current location of the mobile.
- | | |
|--------|------------------|
| A) HLR | B) VLR |
| C) EIR | D) None of above |
- 8) _____ is an international standard establishing how mobile devices can access information on the Internet.
- | | |
|-------------|--------|
| A) WLAN | B) WWW |
| C) Internet | D) WAP |
- 9) The various nodes along the packet's path from first node to last node must cooperate in order to make the information exchange successful. This cooperation process is called _____
- | | |
|-------------------|-----------------|
| A) Transmission | B) Routing |
| C) Transformation | D) All of above |
- 10) _____ is designed to allow nodes to dynamically discover a source route across multiple network hops to any destination in the ad hoc network.
- | |
|--|
| A) Dynamic Source Routing (DSR) |
| B) Ad Hoc On-Demand Distance Vector Routing |
| C) Destination-Sequenced Distance-Vector Routing |
| D) Optimized Link State Routing |
- 11) Kelpie is a SIP to XMPP gateway, originally designed for use for Voxbone's iNum network.
- | | |
|---------|----------|
| A) True | B) False |
|---------|----------|



Seat No.	
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M.C.A. Commerce (Part – I) (Semester – I) Examination, 2014
DISCRETE MATHEMATICS

Day and Date : Tuesday, 9-12-2014

Max. Marks : 70

Time : 11.00 a.m. to 2.00 p.m.

Instructions : 1) *All questions are compulsory.*
2) *Figure to the right indicates full marks.*

1. Fill the blanks : **(10×1)**

- a) A connected graph contains an Euler path, iff it has exactly _____ vertices of odd degree.
- b) A system consisting of a non-empty set and one or more n-ary operations on the set is called an _____
- c) The codes obtained by introducing additional digits to the digits in original message are called _____ codes.
- d) A single card is drawn from an ordinary deck of 52 cards, the probability that the card is a face card is _____
- e) A vertex of degree zero is called _____
- f) $\sim (p \vee q) \equiv$ _____
- g) A compound proposition that is always false for all possible values of its variables is called _____
- h) The sum of the degrees of all the vertices of an undirected graph is _____
- i) If semigroup $\{M, *\}$ has an identity element with respect to the operation $*$, then $\{M, *\}$ is called _____
- j) An ordered arrangement of r elements of a set containing n distinct element is called _____ of n elements.

P.T.O.



2. Define the terms : (5×2)
- i) Regular graph
 - ii) Cyclic group
 - iii) Sample space
 - iv) Tree
 - v) Sum principle.
3. Attempt **any four** from following : (4×5)
- i) Explain following properties of algebraic system :
 - a) Closure
 - b) Associativity
 - c) Commutativity
 - d) Identity element
 - e) Idempotent element.
 - ii) Using Warshall algorithm, find all the transitive closure of the relation $R = \{(1, 2), (2, 3), (3, 3)\}$ on the set $A = \{1, 2, 3\}$.
 - iii) Out of 5 men and 2 women, a committee of 3 is to be formed. In how many ways can this be done so as to include at least one woman ?
 - iv) Construct the truth table for : $((p \rightarrow q) \wedge (q \rightarrow r)) \rightarrow (p \rightarrow r)$.
 - v) Explain following terms with example :
 - a) Reflexive relation
 - b) Asymmetric relation.
 - vi) Find the code words generated by the encoding function $e : B^2 \rightarrow B^5$ with respect to the parity check matrix

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



4. Attempt **any two** from following : (2×10)

i) Two unbiased dice are thrown. Find the probability that

- a) Getting a sum of 6
- b) The numbers shown are equal
- c) The difference of the numbers shown is 1
- d) The first die shows 6
- e) The total of numbers greater than 8.

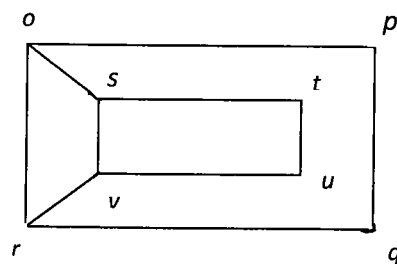
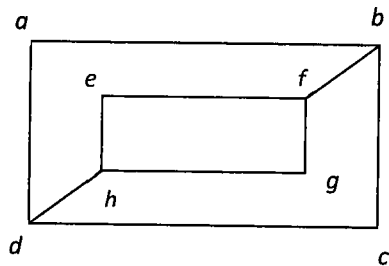
ii) Construct an argument and show that the following premises imply the conclusion “It rained”.

“If it does not rain or if there is no traffic dislocation, then the sports day will be held and the cultural programme will go on” ; “If the sports day is held, the trophy will be awarded” and “the trophy was not awarded”.

iii) If * is the binary operation on the set R of real numbers defined by $a*b = a + b + 2ab$.

- a) Find if $\{R, *\}$ is a semigroup. Is it commutative ?
- b) Find the identity element, if exists.
- c) Which elements have inverse and what are they ?

5. Determine whether the graphs shown below are isomorphic. (1×10)





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Direct M.C.A. II Year (Commerce) Students (Bridge Course)
Examination, 2014
Paper – I : DISCRETE MATHEMATICAL STRUCTURE

Day and Date : Saturday, 13-12-2014
Time : 11.00 a.m. to 2.00 p.m.

Total Marks : 100

- Instructions:** 1) Q. 1 and Q. 7 are **compulsory**.
2) Attempt **any two** questions from Q. 2 to Q. 4.
3) Attempt **any one** question from Q. 5 to Q. 6.
4) Figures to the **right** indicate **full** marks.

1. A) Choose correct alternatives : 10
- 1) The value of n when $c(n, 4) = c(n, 1)$ is
a) 4 b) 5 c) 10 d) none of above
 - 2) The equivalent statement of the formula $\sim p \rightarrow q$ is
a) $q \rightarrow p$ b) $\neg q \rightarrow p$
c) $\neg q \vee p$ d) $p \vee q$
 - 3) The formula for permutation with repetition allowed is
a) $n!/(n-r)!$ b) n^r c) r^n d) $n!/r!(n-r)!$
 - 4) If a semigroup $\{M, *\}$ has an identity element w.r.t. $*$ then $\{M, *\}$ is called _____
a) subsemigroup b) submonoid
c) monoid d) group
 - 5) Which of the following statement is the De Morgan's law ?
a) $p \vee q = q \vee p$ b) $p \vee (p \wedge q) = p$
c) $p \vee \neg p \equiv \neg p$ d) $\neg(p \vee q) \equiv \neg p \wedge \neg q$
 - 6) The identity element of the algebraic system $\{S, *\}$ where S is set of integers and $*$ is defined as $a * b = a + b + 2$ for all $a, b \in S$ is _____
a) -2 b) 2 c) 1 d) none of these



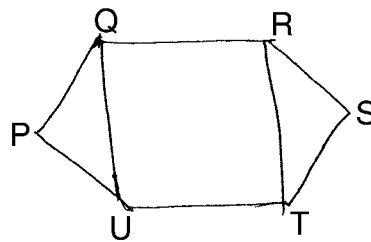
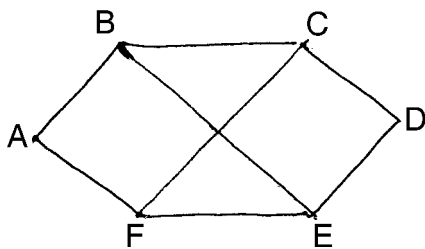
- 3. A) State and prove the Handshaking theorem. 10
B) Find whether the conclusion C follows from the primises H_1, H_2, H_3 in following case, using truth table. 10
 $H_1 : p \vee q, H_2 : p \rightarrow r, H_3 : q \rightarrow r, C : r$

- 4. A) Define : 10
 - i) Complete graph
 - ii) Bipartite graph
 - iii) Circuit.B) If $\{G, *\}$ is an abelian group, show that $(a * b)^n = a^n * b^n$, for all $a, b \in G$, where n is a positive integer. 10

- 5. A) Write down the composition tables for $\langle Z_7, +_7 \rangle$ and $\langle Z^*_7, X_7 \rangle$ where $Z^*_7 = Z_7 \setminus \{0\}$. 10
B) From a group of 7 men and 6 women, 5 persons are to be selected to form a committee so that at least 3 men are there on the committee. How many ways can it be done ? 10

- 6. A) Show that $p \rightarrow (p \wedge r)$ and $(p \rightarrow q) \wedge (p \rightarrow r)$ are equivalent. 10
B) Use Warshall's algorithm to find the transitive closure of the relation $R = \{ \langle 1, 3 \rangle, \langle 1, 1 \rangle, \langle 3, 1 \rangle, \langle 1, 2 \rangle, \langle 3, 3 \rangle, \langle 4, 4 \rangle \}$ on $A = \{1, 2, 3, 4\}$. 10

- 7. A) Determine whether the following graphs are isomorphic or not ? 10



- B) Suppose code c is given by $c = \{0000, 0011, 1101, 1110\}$ in which parity Bit $k = 2$. What is transmitted codeword (original message) if received word is 1001 ? 10



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M.C.A. (Commerce) Direct II Year Student (Bridge Course)
Examination, 2014
Paper – II : OPERATING SYSTEM

Day and Date : Monday, 15-12-2014
Time : 11.00 a.m. to 2.00 p.m.

Total Marks : 100

- Instructions:** 1) Q. No. 1 and 7 are **compulsory**.
2) Solve **any two** questions from Q. No. 2, 3 and 4.
3) Solve **any one** question from Q. No. 5 and 6.

1. A) Fill in the blanks :

10

- 1) A process can be _____
 - a) Single threaded
 - b) Multithreaded
 - c) Both a) and b)
 - d) None of the mentioned
- 2) Page stealing _____
 - a) is a sign of an efficient system
 - b) is taking page frames from other working sets
 - c) should be the tuning goal
 - d) is taking larger disk spaces for pages paged out
- 3) Which of the following scheduling algorithms gives minimum average waiting time ?
 - a) FCFS
 - b) SJF
 - c) RR
 - d) Priority
- 4) _____ Scheduler selected the jobs from the pool of jobs and loading to the ready queue.
 - a) Long Term
 - b) Short Term
 - c) Medium Term
 - d) None
- 5) Moving Process from main memory to disk called _____
 - a) Scheduling
 - b) Caching
 - c) Swapping
 - d) Spooling
- 6) Demand paging _____
 - a) Fetches a page only when needed
 - b) Fetches a page that is likely to be demanded
 - c) Pages out pages when that page frame is needed
 - d) None



- 7) Inter Process communications can be done through _____
a) Mails b) Messages c) System Calls d) Traps
- 8) Which is not the state of the process ?
a) Blocked b) Running c) Ready d) Privileged
- 9) The number of processes completed per unit time is known as _____
a) Output b) Throughput c) Efficiency d) Capacity
- 10) A critical region _____
a) is a piece of code which only one process executes at a time
b) is a region prone to deadlock
c) is a piece of code which only a finite number of processes execute
d) is found only in Windows NT operation system

B) State whether following statements are **True** or **False** :

4

- 1) An unsafe state always leads to a deadlocked state.
- 2) The optimal page replacement algorithm is the best choice in practice.
- 3) System calls do not change to privilege mode of the processor.
- 4) A smaller page size leads to fewer page faults.

C) Answer in **2-3** sentences (**any 3**) :

6

- 1) Throughput
- 2) Interrupts
- 3) Memory management
- 4) Segmentation.

2. Attempt the following (**any 2**) :

20

- 1) Explain the need for synchronization.
- 2) Explain deadlock avoidance algorithm (bankers) in detail.
- 3) What is virtual memory ? Explain demand paging in detail.

3. Attempt the following :

20

- 1) Explain critical region and monitor in detail.
- 2) Discuss interprocess communication in detail.



4. Attempt the following : 20
- 1) Explain the evolution of operating systems.
 - 2) Illustrate the difference between Process and Thread.

5. Attempt the following : 20
- Consider the following Set of Process, with the length of the CPU-Brust time given in milliseconds :

Process	Brust time	Priority
P1	10	3
P2	1	1
P3	2	5
P4	1	4
P5	5	2

The processes are assumed to have arrived at time zero.

- a) Draw four Gantt charts illustrating the execution of these processes using FCFS, SJF, Priority and RR (quantum = 1) scheduling.
- b) Calculate the average turn around time, average waiting time and response time for all algorithms.

6. Attempt the following : 20
- Consider a reference string 1, 2, 3, 4, 5, 3, 4, 1, 6, 7, 8, 7, 8, 9, 7, 8, 9, 5, 4, 5, 4, 2. How many page fault occur for FIFO, Optimal and LRU algorithms (four page frames are available) ?

7. Attempt the following :
- A) Discuss the difference between UNIX and windows. 10
 - B) Write a short note on **(any 2)** : 10
 - 1) Semaphore
 - 2) Demand Paging
 - 3) Compaction
 - 4) C-SCAN.
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M.C.A. (Semester – I) (Commerce) Examination, 2014
PRINCIPLES OF MANAGEMENT

Day and Date : Thursday, 11-12-2014
Time : 11.00 a.m. to 2.00 p.m.

Max. Marks : 70

Instructions: 1) **All questions are compulsory.**
2) Figure to the **right** indicates **full marks.**

1. A) Multiple choice questions :

5

- 1) One of the most popular ways of defining management is that it involves getting work done.
 - a) Through the efforts of other managers.
 - b) As quickly as possible.
 - c) Through the efforts of other people.
 - d) With as little efforts as possible.
- 2) Which of the following is/are possible indicators of a manager's effectiveness ?
 - a) Accuracy of work carried out by the department
 - b) Absenteeism and levels of sickness, level of staff turnover, numbers of accidents at work
 - c) Keeping within agreed cost or budgetary control limits
 - d) All the above
- 3) One method of bringing a group to agreement is called
 - a) Proportional values
 - b) Consensus
 - c) Accordance
 - d) Conformance
- 4) Early theories about how individuals make decisions were based on the concept of a(n).
 - a) Utilitarian philosophy
 - b) Action man
 - c) Economic man
 - d) Attentive man
- 5) Some policies are imposed by external forces, such as
 - a) Governmental regulatory agencies
 - b) Employee demands
 - c) Management decisions
 - d) Lack of funding



B) State whether **true** or **false** :

5

- 1) According to Herzberg, salary is a maintenance factor.
- 2) Management is the combination of Arts, Science and Profession.
- 3) Under the climate of morale recognition is the result of broadening the interest of individual to include the whole group.
- 4) Motivation of subordinates to meet the expectations of the manager is a feature of direction.
- 5) Henry Fayol's contribution is classified into ten industrial and management principles.

2. Answer in **1-2** sentences :

(5×2)

- i) Define Management.
- ii) What Staffing ?
- iii) What do you mean by MBO ?
- iv) State types of control.
- v) What is Motivation ?

3. Attempt **any four** from following :

(4×5)

- 1) Explain types of manager ?
- 2) Discuss scientific management by F.W. Taylor.
- 3) Explain planning.
- 4) Explain line and staff organization.
- 5) Discriminate structured and non-structured decisions.
- 6) What is a Group ? Explain difference between team and group.
- 7) Explain HR Approach.

4. Attempt **any two** of the following :

(2×10)

- i) Henry Fayol is known as father of "Modern management". Discuss.
- ii) Define and explain the concept of "Management". Discuss its nature and scope.
- iii) What is meant by Decision Making ? Explain the process of Decision Making in detail.

5. Explain the term organizational behavior along with its significance. Do you think that individual behavior and self affects O.B. ? Discuss.

(1×10)



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M.C.A. – I (Semester – II) (Commerce) Examination, 2014
OBJECT ORIENTED PROGRAMMING WITH C++

Day and Date : Wednesday, 3-12-2014
Time : 11.00 a.m. to 2.00 p.m.

Max. Marks : 70

Instructions : 1) **All questions are compulsory.**
2) **Figure to the right indicates full marks.**

1. A) Fill in the blanks : 5
- 1) Runtime polymorphism is achieved by _____ and _____
 - 2) All the member functions defined within the body of a class are treated as _____ by default.
 - 3) _____ are automatically executed when the object is destroyed.
 - 4) The object is not declared for _____ class.
 - 5) _____ keyword is used to overload the operator.
- B) **True/False :** 5
- 1) A constructor never returns a value.
 - 2) Pure virtual function can have body.
 - 3) The assignment operator cannot be overloaded.
 - 4) Pointer to base class can point to object of base class only.
 - 5) Files whose names end in .h are called header files.
2. Answer in **1-2** sentences : (5×2)
- i) What is copy constructor ?
 - ii) What is a namespace ?
 - iii) What is method overriding ?
 - iv) What do you mean by static methods ?
 - v) What do you mean by inline function ?
3. Attempt **any four** from following : (4×5)
- i) What is a scope resolution operator ? Explain with example.
 - ii) What is Pure Virtual Function ? Why and when it is used ?



- iii) Write a program to demonstrate invocation of constructors and destructors.
- iv) What is containership or delegation ? How it differs from inheritance ?
- v) Write a function template to find maximum element in array.
- vi) Design a class which contains two data members and one member function `getdata()` and declare one friend function with name `Sum()`. Call `sum()` from `main()`, pass object to it and access member variables of the object and do the addition of them.

4. Attempt **any two** from following : **(2×10)**

- i) Define a class to represent Bank Account. Include following data members.
 - a) Name of depositor
 - b) Type of account
 - c) Account No.
 - d) Balance amount.

Member functions :

- a) To assign initial value
 - b) To deposit an amount
 - c) To withdraw an amount
 - d) To display name of depositor and balance.
- ii) Write a program to overload addition (+) operator in string class.
- iii) Design three classes : Student, Exam and Result. The student class has data members such as that representing roll number, name etc. Create a class exam by inheriting the Student class. The Exam class adds the data members representing marks scored in six subjects. Derive Result class from Exam Class and it has its own data members such as total-marks and percentage. Write a program to model this relationship.

5. Write a menu driven program to add and display book details (book name, author name, price etc.) in book.txt file. **(1×10)**



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**M.C.A. (Commerce) (Part –I) (Semester – II) Examination, 2014
OPERATING SYSTEM CONCEPTS (New)**

Day and Date : Friday, 5-12-2014
Time : 11.00 a.m. to 2.00 p.m.

Total Marks : 70

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

1. A) Choose correct alternative : **5**
- 1) The mechanism that bring a page into memory only when it is needed is called _____
 - A) Segmentation B) Fragmentation
 - C) Demand Paging D) Page Replacement
 - 2) The Banker's algorithm is used
 - A) to prevent deadlock in operating systems
 - B) to detect deadlock in operating systems
 - C) to rectify a deadlocked state
 - D) none of the above
 - 3) The number of processes completed per unit time is known as _____
 - A) Output B) Throughput
 - C) Efficiency D) Capacity
 - 4) A critical region
 - A) is a piece of code which only one process executes at a time
 - B) is a region prone to deadlock
 - C) is a piece of code which only a finite number of processes execute
 - D) is found only in Window NT operation system
 - 5) Which is not the state of the process ?
 - A) Blocked B) Running
 - C) Ready D) Privileged



B) State whether following statements are **True** or **False** : **5**

- 1) The circular-wait condition for a deadlock implies the hold-and-wait condition.
- 2) If a resource-allocation graph has a cycle, the system must be in a deadlocked state.
- 3) An unsafe state always leads to a deadlocked state.
- 4) The optimal page replacement algorithm is the best choice in practice.
- 5) A smaller page size leads to smaller page tables.

2. Answer in **1-2** sentences : **(5×2)**

- 1) What is Compaction ?
- 2) What do you mean by wait-for-graph ?
- 3) What are the memory management requirements ?
- 4) What do you mean by swapping ?
- 5) What is the difference between page and segment ?

3. Attempt **any four** from following : **(4×5)**

- 1) What is deadlock ? Explain deadlock protection in detail.
- 2) What is virtual memory ? Explain Demand paging in detail.
- 3) Explain directory structures in details.
- 4) Write and Explain an algorithm for readers-writers problem in detail.
- 5) Explain NOS architecture in detail.
- 6) List and explain any five features of UNIX operating system.

4. Attempt **any two** from following : **(2×10)**

- 1) Discuss first fit, best fit and worse fit strategies in terms of memory allocation scheme. Which scheme should be used when by explaining their advantages and disadvantages ?
- 2) Explain Critical Region and Monitor in detail.
- 3) What are Semaphores ? How they are used in process synchronization ?

5. Attempt the following : **(1×10)**

Explain following scheduling algorithms with the help of examples along with their advantages and disadvantages :

- a) First Come First Served (FCFS)
 - b) Shortest Job First (SJF)
 - c) Priority Scheduling
 - d) Round Robin Scheduling.
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**M.C.A. (Commerce) (Sem. – II) Examination, 2014
WEB TECHNOLOGY**

Day and Date : Monday, 8-12-2014
Time : 11.00 a.m. to 2.00 p.m.

Max. Marks : 70

Instructions: 1) *All questions are compulsory.*
2) *Figure to the right indicates full marks.*

1. A) Fill in the blanks :

5

- 1) Choose the correct HTML tag for the largest heading
a) <h6> b) <h1> c) <head> d) <large>
- 2) How can you make a list that lists the items with numbers ?
a) b) <list> c) <dl> d)
- 3) What is the correct HTML for making a text area ?
a) <input type="text"/> b) <textarea>
c) <input type="text"/> d) <input type="longtext">
- 4) What is the correct HTML for inserting an image ?
a) b) img href="image.gif/>
c) d) image.gif
- 5) Who is making the web standards ?
a) Mozilla b) The World Wide Web Consortium
c) Microsoft d) Google

1. B) State **true** or **false** :

5

- 1) HTML is a popular Object Oriented Language.
- 2) CENR is Center for European Nuclear Research.
- 3) In PHP 'printf' statement is used to display the contents.
- 4) XML stands for "Extra Markup Language".
- 5) In javascript == is used to show the equality of values and type.

P.T.O.



2. Answer in **1-2** sentences : **(5×2)**
- i) Data types in PHP.
 - ii) <div> tag in HTML.
 - iii) Dates in JavaScript.
 - iv) Saving the file in PHP.
 - v) DTD in XML.
3. Attempt **any four** from following : **(4×5)**
- i) Explain Object Oriented PHP.
 - ii) Explain arrays in PHP.
 - iii) Write down image mapping with an example.
 - iv) Explain lists in HTML.
 - v) List out various CSS Border properties.
 - vi) Design a registration form in HTML which includes user name, date of birth, country, gender, city, state and country.
4. Attempt **any two** from following : **(2×10)**
- i) Differentiate between Inline Style Sheet vs. Internal Style Sheet.
 - ii) Explain the DOM objects in JavaScript.
 - iii) Write a program in PHP using Get and Post methods.
5. Write a database connectivity program for searching a student record by using student roll number. **(1×10)**
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**M.C.A. (Commerce) – I (Semester – II) Examination, 2014
SOFTWARE ENGINEERING**

Day and Date : Wednesday, 10-12-2014
Time : 11.00 a.m. to 2.00 p.m.

Max. Marks : 70

Instructions: 1) *All questions are compulsory.*
2) *Figures to the right indicates full marks.*

1. A) Select the correct alternative : 5
- 1) Zero level diagram contains
 - a) two process
 - b) one process
 - c) many process
 - d) none of above
 - 2) The most creative and challenging phase of System Life Cycle is
 - a) Feasibility study
 - b) Design
 - c) Maintenance
 - d) Coding
 - 3) Which of the following is not type of software maintenance ?
 - a) System maintenance
 - b) Corrective maintenance
 - c) Adaptive maintenance
 - d) Perfective maintenance
 - 4) For proper software design coupling should be _____ and cohesion should be _____
 - a) low, low
 - b) low, high
 - c) high, low
 - d) high, high
 - 5) _____ model is preferred for risk analysis.
 - a) Prototype
 - b) Waterfall
 - c) RAD
 - d) Spiral
- B) State **true** or **false** : 5
- 1) Structural English is tool for process modelling.
 - 2) Spiral model provides a realistic approach to the development of large scale systems.
 - 3) The time period for Spiral is 60 to 90 days.
 - 4) Logical modelling is represented by decision table.
 - 5) A high-quality SRS reduces the development cost.



2. Answer in **1-2** sentences : **10**
- 1) What is a Decision table ?
 - 2) Define Entity Relationship Diagram.
 - 3) What is corrective maintenance ?
 - 4) What is output design ?
 - 5) Write the fact finding methods.
3. Attempt **any four** from the following : **20**
- 1) Explain spiral model of system development.
 - 2) Write short note on data dictionary.
 - 3) Explain Web Engineering in short.
 - 4) What is SRS ? Explain its importance in system development.
 - 5) Explain the different types of documentation.
 - 6) Write short note on standard coding techniques.
4. Attempt **any two** questions from following : **20**
- 1) Explain the Software Development Life Cycle in Software Engineering.
 - 2) Discuss elements and issues in good user interface design.
 - 3) What is reverse engineering ? State the process involved in Reverse Engineering.
5. Draw the ERD and DFD for Tours and Travels Management System. **10**
-