



Seat No.	
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**M.C.A. (Commerce) (Part – I) (Semester – I) Examination, 2015
COMPUTER ORGANIZATION AND ARCHITECTURE**

Day and Date : Tuesday, 5-5-2015
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.
3) Solve **any one** question from Q. No. 5 and 6.

1. A) Select correct alternative :

8

- 1) MISD stands for _____
A) Multiple Instruction Stream Single Data
B) Multiple Instruction Memory Data
C) Memory Instruction Multiple Data
D) Multiple Information Single Data
- 2) Converting number $(11000101010000111)_2$ to hexadecimal equivalent will give
A) $(18C86)_{16}$ B) $(18B86)_{16}$ C) $(18A87)_{16}$ D) $(18A86)_{16}$
- 3) The decimal equivalent of the binary no. 11100.001 is
A) 28.50 B) 30.12 C) 28.125 D) None of these
- 4) After Reset the 80386 starts instruction fetch from the address _____
A) FFFFF0 B) FFFFFFFF C) FFFFFFFF0 D) All of these
- 5) The AND gate output will be high if the two inputs are _____
A) 00 B) 01 C) 10 D) 11
- 6) The output of half adder is _____
A) Sum and borrow B) Sum and carry
C) Difference and carry D) None of these
- 7) A micro programmed control unit is
A) Faster than hard-wired control
B) Easy to implement of new instruction
C) Useful to run small program
D) Usually refers to the control unit of microprocessor
- 8) Which device has one input and many outputs ?
A) Flip flop B) Multiplexer
C) Demultiplexer D) Counter



- B) State **true** or **false** : 6
- 1) All processing receive the same instruction from the control unit but operate in different data in MIMD.
 - 2) Micro-programmed control unit is flexible.
 - 3) In 80386 microprocessor having 24 bit address bus.
 - 4) The average time required to reach a storage location in memory and obtain its contents called seek time.
 - 5) Multiplexer has many inputs and one outputs.
 - 6) Flip flop holds two bits of information.
2. A) What is Multiplexer ? Explain 1 : 8 DUX. 7
- B) What is flip-flop ? List out the different types of flip-flop explain S-R flip-flop. 7
3. A) Explain System Bus Characteristics. 7
- B) What is Parallel Database ? Explain factors affecting on performance of processor. 7
4. A) What is Shift Register ? Explain serial in Serial Out. 7
- B) Differentiate RISC and CISC. 7
5. A) Explain the memory hierarchy in detail. 7
- B) Explain 80286 microprocessor. 7
6. A) What is register ? Explain different types of register. 7
- B) Explain CPU building blocks accumulator based. 7
7. Write a short note on : 14
- A) Decoder
 - B) EBCDIC and ASCII
 - C) Parallel processing.
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Seat No.	
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**M.C.A. (Commerce) Semester – III (Old) Examination, 2015
WEB PROGRAMMING**

Day and Date : Tuesday, 5-5-2015
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 Correct Alternative : 7

- 1) <td> ... </td> tag is used for _____
a) Table heading b) Table records c) Table row d) None of these
- 2) Which of the following is not a pair tag ?
a) <p> b) <u> c) <i> d)
- 3) Which attribute is used with img tag to display the text if image could not load in browser ?
a) Description b) name c) alt d) id
- 4) HTML documents are saved in
a) Special binary format b) Machine language code
c) ASCII text d) None of these
- 5) HTML tags are used to describe document _____
a) Content b) Language c) Definition d) None of these
- 6) There are how many Heading tags ?
a) 3 b) 4 c) 5 d) 6
- 7) Which of the following is used to increase the column width ?
a) Cellspacing b) Cellpadding c) rowspan d) colspan

1. B) State whether **True** or **False** : 7

- 1) An unvisited link is underlined and blue.
- 2) XML stands for “Extra Media Language”.
- 3) HTML tags are surrounded by round brackets.
- 4) Not all HTML tags have closing tag associated with it.
- 5) HTML tags are case sensitive.
- 6) CSS stands for “Central Style Sheet”.
- 7) To define inline styles “style” attribute is used.



2. Attempt the following : 14
- 1) Explain HTTP, W3C and WWW
 - 2) Explain server object in ASP.
3. Attempt the following : 14
- 1) What is CSS ? Explain different types of CSS.
 - 2) Explain use of <div> and with suitable example.
4. Attempt the following : 14
- 1) Explain Date object with methods in JavaScript.
 - 2) Explain different types of lists with example in HTML.
5. Write JavaScript Code to convert temperature by using following GUI. Add event on Convert button to convert temperature from Fahrenheit to Degree Celsius and Vice versa if the user enter any value of any temperature. 14

Fahrenheit		Convert
Degree Celsius		

Use the following formula for the conversion.

$$\text{Celsius} = 5/9 * (\text{Fahrenheit} - 32)$$

6. Explain SAX and DOM parsers with suitable example. 14
7. Create following employee enrollment web form with following details. 14
- Text box accepts name
 - Text box accepts password
 - Radio button accept card type [Master/Visa]
 - Check boxes for work type [Maintenance/Testing]
 - Drop down list for hobbies [Sports/music/reading]
 - Submit and Reset buttons
- Validate all fields by using JAVASCRIPT
- Write code to store all data on form in Database using ASP.
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Seat No.	
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**M.C.A. (Commerce) II (Semester – III) (Old) Examination, 2015
DATA COMMUNICATION AND COMPUTER NETWORKS**

Day and Date : Thursday, 7-5-2015
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) Figures to the **right** indicate marks to a question or sub question.

1. A) Choose the correct alternatives from the following. **10**
- i) Which of the following condition is used to transmit two packets over a medium at the same time ?
 - a) Contention
 - b) Collision
 - c) Synchronous
 - d) Asynchronous
 - ii) Which of the following is not a disadvantage of wireless LAN ?
 - a) Slower data transmission
 - b) Higher error rate
 - c) Interference of transmissions from different computers
 - d) All of the above
 - iii) In OSI network architecture, the dialogue control and token management are responsibility of
 - a) session layer
 - b) network layer
 - c) transport layer
 - d) data link layer
 - iv) _____ are standard response codes given by web site servers on the Internet.
 - a) HTTP status codes
 - b) Error Code
 - c) Message Authentication Code
 - d) None of these



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| 2. A) Symmetric key signature | 7 |
| B) Resource Record | 7 |
| 3. A) Write a note on Digital Signature | 7 |
| B) What is DNS & DNS Namespace | 7 |
| 4. A) What is Virtual Private Network ? | 7 |
| B) Write about OSI & TCP/IP Model. | 7 |
| 5. What is Routing ? Explain different routing algorithms. | 14 |
| 6. Write about the concept of IP addressing. Which are the different Address Classes ?
Write neat diagram for it. | 14 |
| 7. Write about Sending and Receiving E-mails. What is E-mail addressing and
message structure ? | 14 |
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Seat No.	
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**M.C.A. II (Semester III) Examination, 2015
(Commerce and Management Faculty)
OBJECT ORIENTED PROGRAMMING USING C++ (Old)**

Day and Date : Saturday, 9-5-2015
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. 7
- 1) The size of an object of an empty class is _____.
a) 1 byte b) 2 bytes c) 4 bytes d) 0 bytes
 - 2) A class that contains at least one pure virtual function is said to be _____ class.
a) virtual b) pure c) abstract d) pure virtual
 - 3) When a base class is _____ inherited, public members of the base class becomes private members of the derived class.
a) publicly b) privately c) protectedly d) none of these
 - 4) A _____ variable has been used as an argument to the copy constructor.
a) const b) static c) non-static d) reference
 - 5) _____ is the mechanism of deriving certain properties of one class into another.
a) polymorphism b) inheritance c) abstraction d) encapsulation
 - 6) get() is used to
a) get a sting b) get a number
c) get a character d) get ASCII value
 - 7) _____ class provides only input operations.
a) ifstream b) ofstream c) fstream d) filebuf



- B) State **true** or **false**. 7
- 1) A class inherited from another derived class is known as multilevel inheritance.
 - 2) Pure virtual function can have body.
 - 3) A function template can not have multiple argument types.
 - 4) Constructors can be called explicitly.
 - 5) It is illegal to make object of one class as member of another class.
 - 6) Exceptions are errors that occur at runtime.
 - 7) The eof() member function returns true when the file has been not created.
2. A) Explain the difference between method overloading and method overriding. 7
- B) Write a C++ program to design a class string and overload operator + for concatenation of two strings. 7
3. A) Explain constructor overloading with suitable example. 7
- B) Differentiate between class and structure. 7
4. A) Write a program to sort array by using template class. 7
- B) What are the default arguments ? Explain it with simple example. 7
5. There are 100 records present in a file. Each record containing 6-characters Itemcode, 20-characters Item_Name and an Integer Quantity. Write a program in C++ to read these records arrange them in the ascending order and write them in the same file overwriting the earlier records. 14
6. A) What is exception ? Explain exception handling mechanism in C++ with suitable example. 7
- B) Explain use of new, delete and scope resolution operators. 7
7. Explain the OOP's features in details with examples. 14
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**M.C.A. (Commerce) (Part – II) (Semester – III) Examination, 2015
ADVANCED DATABASE MANAGEMENT SYSTEM (Old)**

Day and Date : Tuesday, 12-5-2015
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. Fill in the Blank :

14

- 1) Which of the following is a benefit of parallel database ?
A) Improved performance B) Greater flexibility
C) Better availability D) All of the above
- 2) Which of the following is a Data Partitioning technique ?
A) Cache coherence B) I/O parallelism
C) Hash partitioning D) None of these
- 3) A _____ is collection of objects that have the same attribute and respond to the same messages.
A) Class B) Instance
C) Object D) Sub Class
- 4) Which of the following finds object of a particular type that is within a given spatial area or within a particular distance from a given location ?
A) Range Query
B) Spatial join
C) Nearest Neighbors Query
D) All of these
- 5) A snowflake schema is which of the following types of tables ?
A) Fact B) Helper
C) Dimension D) All of these



- 6) _____ seeks to improve performance through Parallelization of various operations.
- A) Spatial Database System
 - B) Mobile Database System
 - C) Parallel Database System
 - D) None of these
- 7) An object typically have two components
- A) Class
 - B) Object
 - C) Instance
 - D) All of these
- 8) In _____ Processors send the result of one operation to another operation as those results are computed without waiting for the entire operation to finish.
- A) Pipelined Parallelism
 - B) I/O Parallelism
 - C) Para Parallelism
 - D) Independent
- 9) A star schema has what type of relationship between a dimension and fact table ?
- A) Many to many
 - B) One to one
 - C) One to many
 - D) All of these
- 10) Fact consitilation schema consisting of _____
- A) One fact table
 - B) Two fact table
 - C) Zero fact table
 - D) None of above
- 11) Data werehouse often adopt _____
- A) One Tier Architecture
 - B) Two Tier Architecture
 - C) Three Tier Architecture
 - D) None of these
- 12) _____ is the example of unsupervised learning algorithm.
- A) Classification
 - B) Association
 - C) Prediction
 - D) Clustering
- 13) For Market Basket Analysis _____ algorithm is used.
- A) Classification Algorithm
 - B) Association Rule
 - C) Time Series Analysis
 - D) Clustering
- 14) Which of the following is spatial indexing method ?
- A) R-trees
 - B) X-tress
 - C) B-trees
 - D) All of these



2. Attempt the following (**any 2**): **14**
 - 1) Describe Data Cube and operations on data cube.
 - 2) Discuss in brief Inter-operational and Intra-operational parallelism.
 - 3) Discuss Parallel Database architecture.

 3. Attempt the following (**any 2**): **14**
 - 1) Explain knowledge base system.
 - 2) Differentiate between OLAP AND OLTP.
 - 3) Explain Client – Server database model in detail.

 4. Attempt the following (**any 2**): **14**
 - 1) Illustrate the difference between Transactional database and Data warehouse.
 - 2) Explain in brief Spatial database.
 - 3) Define Data Mining. Explain classification in Data mining.

 5. Explain the multidimensional Schema in Data warehouse. **14**

 6. What is association rule ? Explain Apriori Algorithm. **14**

 7. Write a short note on (**any 2**): **14**
 - A) Expert Database System.
 - B) SOAP.
 - C) Web Based system.
 - D) Clustering.
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M.C.A. (Part – II) (Semester – III) (Old) Examination, 2015
Commerce
MANAGEMENT SUPPORT SYSTEMS AND IS SECURITY

Day and Date : Thursday, 14-5-2015

Total Marks : 70

Time : 3.00 p.m. to 6.00 p.m.

- Instructions :** 1) Q. No. 1 and Q. No. 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 the correct alternative. 10
- 1) Which among the following presents information in the most highly summarized form?
a) Transaction processing system b) Management information system
c) Decision support system d) Executive support system
 - 2) A transaction processing system is also sometimes referred to as a
a) Sales Order Processing b) Data Processing System
c) Management Information System d) Database Management
 - 3) This level of management uses information summarized to plan the future growth and direction of the organization.
a) Top management b) Middle management
c) Supervisors d) Stockholders
 - 4) The decision-making environment of an operational level manager can be as
a) Structured b) Semi structured
c) Unstructured d) None of these
 - 5) _____ normally found in a manufacturing organization will not be suitable in the service sector.
a) MIS b) TPS c) ESS d) DSS
 - 6) The information of MIS comes from the
a) Internal source b) External source
c) Both a and b d) None of these



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M.C.A. (Part – II) (Semester – III) Examination, 2015
COMMERCE AND MANAGEMENT FACULTY
Data Structure Using C++ (New)

Day and Date : Tuesday, 5-5-2015

Max. Marks : 70

Time : 3.00 p.m. to 6.00 p.m.

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

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

8

A) Fill in the blanks.

- 1) The element indices of an array can be computed at
 - a) cannot be computed
 - b) compile time
 - c) run time
 - d) both b and c
- 2) The disadvantage in using a circular linked list is
 - a) It is possible to get into infinite loop
 - b) Last node points to first node
 - c) Time consuming
 - d) Requires more memory space
- 3) In a priority queue, insertion and deletion takes place at
 - a) front, rear end
 - b) only at rear end
 - c) only at front end
 - d) any position
- 4) A list which displays the relationship of adjacency between elements is said to be
 - a) linear
 - b) non linear
 - c) linked list
 - d) trees

P.T.O.



- 5) Given a binary search tree, which traversal type would print the values in the nodes in sorted order ?
- a) Preorder
 - b) Postorder
 - c) Inorder
 - d) None of the above
- 6) AVL tree have Faster
- a) Insertion
 - b) Deletion
 - c) Updation
 - d) Retrieval
- 7) Which of the following statements about binary trees is NOT true ?
- a) Every binary tree has at least one node
 - b) Every non-empty tree has exactly one root node
 - c) Every node has at most two children
 - d) Every non-root node has exactly one parent
- 8) Which of the following below are the applications of B-Tree
- a) Databases
 - b) File systems
 - c) Both a and b
 - d) Memory

B) State **True** or **False** :

6

- 1) Nodes that are not root and not leaf are called as internal nodes.
- 2) Breadth First Search is used for Binary trees.
- 3) B-tree is an acronym for Binary tree.
- 4) A tree cannot contain Cycles.
- 5) A Priority Queue is a linear list in which insertions and deletions are made to from either end of the structure.
- 6) Stack can be described as a pointer.

2. Attempt the following :

14

- 1) Explain different types of queue with example.
- 2) Write a program to insert a new node at specific position in Doubly Link List.



3. Attempt the following : **14**
- 1) Explain Threaded Binary Tree with example.
 - 2) Explain Parentheses Matching application of Stack with example.
4. Attempt the following : **14**
- 1) Write a program for Insertion and deletion Operation on BST.
 - 2) Write a program for Concatenation of Two Singly Link Lists.
5. Attempt the following : **14**
- 1) Write a program to reverse the stack using queue.
 - 2) Explain BST Traversing Techniques with example.
6. Attempt the following : **14**
- What is AVL tree ? Explain insertion and deletion operation on AVL tree. Explain different AVL rotations with the example.
7. Attempt the following : **14**
- What is Graph ? Explain concept of Graph Traversals with the example.
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**M.C.A. (Part – II) (Semester – III) Examination, 2015
(Commerce and Management Faculty)
CORE JAVA PROGRAMMING (New)**

Day and Date : Thursday, 7-5-2015
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 : 10

- 1) Minimum threads running in any java program are
A) 1 B) 2 C) 5 D) Many
- 2) Which of these keywords is not a part of exception handling ?
A) try B) finally C) thrown D) catch
- 3) Which of the following class is not a member class of java.io package ?
A) String B) Reader C) Writer D) File
- 4) _____ is superclass of all classes in java.
A) Class B) Object C) System D) Java.lang
- 5) What is the output of this program ?

```
class output
{
    public static void main(String args[])
    {
        Integer i = new Integer (257);
        float x = i.floatValue();
        System.out.print(x);
    }
}
```

- A) 0 B) 1 C) 257 D) 257.0



- 6) Which of the statements are true ?
- i) Overridden methods have the same method name and signature
 - ii) Overloaded methods have the same method name and signature
 - iii) Overridden methods have the same method name and different signature
 - iv) Overloaded methods have the same method name and different signature
- A) i) B) ii) C) i) and iv) D) ii) and iii)
- 7) Which method must be defined by a class implementing the java.lang. Runnable interface ?
- A) void run() B) public void run()
C) public void start() D) void run (int priority)
- 8) _____ is not lifecycle method of applet.
- A) init B) service C) start D) stop
- 9) _____ is used to call stored procedure in java.
- A) Statement B) PreparedStatement
C) CallableStatement D) None of these
- 10) Automatic conversion of primitive type data into its corresponding wrapper class object is called
- A) Boxing B) Wrapping C) Instantiation D) Autoboxing

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

4

- 1) Final keyword is used in exception handling in java.
- 2) Default priority of thread in java is 10.
- 3) This keyword is used to refer currently executing object.
- 4) String is basic datatype in java.

2. A) Write a program that demonstrate method overloading in java.

7

B) Differentiate between abstract class and interface.

7

3. A) Write a program to handle multiple exceptions using try, catch.

7

B) What is collection ? Explain any one collection class with example.

7



- 4. A) Why do we need to synchronize threads ? How to synchronize threads in java ? Explain with example. 7
 - B) Write a program to create a new thread and join main thread at the end of new thread. 7
 - 5. A) What is serialization ? Explain with example. 7
 - B) Write a program to count number of characters, words, lines in file. 7
 - 6. A) What are the different JDBC drivers ? Which JDBC driver offers better performance ? Comment on this. 7
 - B) Design AWT/Swing interface to accept username and password of user. When user clicks on login button, match username and password with records in database. If match display “Valid user” otherwise display “invalid user” in frame.
(Assume that table LoginData is available in database). 7
 - 7. A) What is ResultSet ? What are different types of ResultSets ? Explain with example. 7
 - B) Why Swing components are called as lightweight ? Explain. Also differentiate AWT and Swing components. 7
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**M.C.A. (Part – II) (Semester – III) Examination, 2015
(Commerce and Management Faculty)
DATA COMMUNICATION AND NETWORKS (New)**

Day and Date : Saturday, 9-5-2015
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 questions from Q. 5 to Q. 6.*
4) *All questions carry equal marks.*

1. A) Select correct alternative : 8
- 1) OSI model has _____ layers.
A) 5 B) 4 C) 3 D) 7
- 2) UDP is called as _____ protocol.
i) Connection oriented
ii) Connections less
iii) Reliable
iv) Unreliable
A) i B) ii C) ii and iv D) iv
- 3) _____ is mail access protocol.
A) POP B) SNMP C) IGMP D) SMTP
- 4) FTP uses _____ port for data connection.
A) 21 B) 20 C) 25 D) 80
- 5) End-to-End connectivity is provided from host-to-host in the _____ layer.
A) transport B) application C) network D) physical
- 6) In which layer, translations from one character code to another occurs ?
A) transport B) session C) presentation D) physical



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**M.C.A. Commerce (Part – II) (Semester – III) (New)
Examination, 2015
SOFTWARE PROJECT MANAGEMENT**

Day and Date : Tuesday, 12-5-2015
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. Select the correct alternative : 14
- 1) Changes made to an information system to add the desired but not necessarily the required features is called
 - A) Preventive maintenance
 - B) Adaptive maintenance
 - C) Corrective maintenance
 - D) Perfective maintenance
 - 2) What combines procedures and tools to manage different versions of configuration objects that are created during the software process ?
 - A) Change control
 - B) Version control
 - C) SCIs
 - D) None of the mentioned
 - 3) Each time a defect gets detected and fixed, the reliability of a software product
 - A) Increases
 - B) Decreases
 - C) Remains constant
 - D) Cannot say anything
 - 4) The productivity of a project is measured in terms of _____ per person-month.
 - A) Testing
 - B) Debugging
 - C) Codes produced
 - D) Function points



- 5) The W5HH principle contains which of the following questions ?
- A) Why is the system being developed ?
 - B) What will be done by whom ?
 - C) Where they are organizationally located ?
 - D) How much of each resource is required ?
 - E) A, C and D
- 6) FP-based estimation techniques require problem decomposition based on
- A) Information domain values
 - B) Project schedule
 - C) Software functions
 - D) Process activities
- 7) A Gantt chart is useful in determining _____
- A) The level of effort for a task
 - B) When a task starts and stops
 - C) How tasks are related to each other
 - D) Who is assigned to do a task
- 8) Which of the following presents the risks and returns associated with the project so the prospective members can evaluate them ?
- A) Project plan
 - B) Scope statement
 - C) Feasibility study
 - D) Work breakdown structure
- 9) Three major categories of risks are
- A) Business risks, personnel risks, budget risks
 - B) Project risks, technical risks, business risks
 - C) Planning risks, technical risks, personnel risks
 - D) Management risks, technical risks, design risks
- 10) _____ is the application of knowledge, skills, tools and techniques to project activities to meet project requirements.
- A) Project management
 - B) Program management
 - C) Project portfolio management
 - D) Requirements management



- 11) A _____ is a temporary endeavor undertaken to create a unique product, service, or result.
A) Program B) Process C) Project D) Portfolio
- 12) Which of the following is not generally considered a player in the software process ?
A) Customers B) End-users C) Project managers D) Sales people
- 13) Software project management begins with a set of activities that are collectively called _____
A) Cost estimation B) Project planning
C) Time estimation D) Resources estimation
- 14) WBS stands for _____
A) Work Breakdown System B) Work By Standard
C) Work Breakdown Structure D) Work By System
2. Attempt the following (**any 2**) : **14**
1) Explain in detail Reel's common sense approach to software projects.
2) Explain in detail organization Paradigm.
3) Define configuration management. Explain in detail contents of SCM.
3. Attempt the following (**any 2**) : **14**
1) Explain the five stages of group formation and its characteristics in details.
2) Explain in detail user role in various stages of software development.
3) What is risk management and its stages ?
4. Attempt the following : **14**
1) Discuss project management tools and explain PERT with suitable example.
2) Explain in detail version and version control.
5. Explain the team structure in s/w project management ? Explain its types. **14**
6. Consider a Hospital management system and being as a project manager you have to implement this system for your client. Discuss all the phases and tasks that you will perform from project initiation to implementation of the system. **14**
7. Write short notes on (**any 2**) : **14**
a) MOI Model.
b) Barry Boehm estimation model
c) Gantt Chart.
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Seat No.	
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M.C.A. (Part – I) (Semester – I) Examination, 2015
‘C’ PROGRAMMING
(Commerce and Management Faculty)

Day and Date : Thursday, 7-5-2015
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** question from Q. 5 and Q. 6.
4) **All** questions carry **equal** marks.

1. A) Attempt the following :

10

- 1) What does the “Static” specify ?
 - a) Initializes a variable to 0
 - b) Automatically increments the variable when used
 - c) It automatically initializes variable to NULL
 - d) Variable stored in register
- 2) _____ is code which is processed before compilation.
 - a) Function
 - b) Procedure
 - c) Pre-processor
 - d) Code
- 3) Structure pointer is incremented by its
 - a) Size of largest element
 - b) Size of structure
 - c) By one
 - d) Size of pointer
- 4) _____ is variable contains multiple member with diff data type but only one is alive at a time.
 - a) Structure
 - b) Union
 - c) Array
 - d) Macro
- 5) Following _____ is not valid octal number.
 - a) 045
 - b) 0
 - c) 078
 - d) 0123
- 6) C is also known as
 - a) High level language
 - b) Low level language
 - c) Middle level language
 - d) None of these
- 7) What is the output of the following statement :
printf (“%-3d”,12345);
 - a) 1 2 3
 - b) – 1 2 3
 - c) 1 2 3 4 5
 - d) 1 2



8) Consider the following code segment :

```
int a [10], *p1, *p2;
p1 = &a[4];
p2 = &a[6];
```

Which of the following statements is incorrect with respect to pointers ?

- a) $p1 + 2$ b) $p1 - 2$ c) $p2 + p1$ d) $p2 - p1$

9) Consider the following statements

```
x = 5;
y = x > 3 ? 10 : 20;
The value of y is
```

- a) 10 b) 20 c) 5 d) 3

10) `puts (argv[0]);` will print

- a) the name of the source code file
 b) `argv`.
 c) number of command line arguments
 d) name of the executable code file

B) State **True** or **False** of the following :

4

- 1) Macro execution is much faster than function.
- 2) C is procedure oriented language.
- 3) Array variable store different data type items.
- 4) Compiler translates high level code into low level one line at a time.

2. a) Explain the C program execution steps in details.

7

b) Explain switch statement with the help of example.

7

3. a) What is recursion ? Write a program to find factorial using recursion.

7

b) Write a program to read 3 employees information (empid, ename and salary) and display the same data.

7

4. a) Write a program to pass an entire structure to function and display it.

7

b) Explain 2-D array with declaration, initialization and accessing.

7

5. a) Write a note on storage classes in C.

7

b) What is pointer ? Write a note on arithmetic operations on pointers.

7

6. a) Differentiate between structure and union.

7

b) What is bit masking ? Explain any one application with example.

7

7. Write a program to copy contents of one file into another using command line arguments.

14



Seat No.	
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**M.C.A. – II (Semester – III) (Commerce) Examination, 2015
ADVANCED DATABASE MANAGEMENT SYSTEM (New)**

Day and Date : Thursday, 14-5-2015

Total Marks : 70

Time : 3.00 p.m. to 6.00 p.m.

- 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) Range query retrieves the tuples from a relation
 - A) Based on a particular attributed value within a given range
 - B) Based on at primary value of the relation
 - C) Based on particular attribute value of a particular attribute
 - D) All of the above
- 2) Shared Memory is _____
 - A) Loosely coupled architecture
 - B) Tightly coupled architecture
 - C) Both A and B
 - D) All of the above
- 3) Which of the following is not a benefit of data fragmentation ?
 - A) Parallelism
 - B) Security
 - C) Concurrency
 - D) Integrity
- 4) A software package consisting if an inference engine and user interface program used as an expert development tool is _____
 - A) Knowledge engineer
 - B) System development
 - C) Expert System Shell
 - D) None of the above
- 5) A distributed database can use which of the following strategies ?
 - A) Totally centralized at one location and accessed by many sites
 - B) Partially or totally replicated across sites
 - C) Partitioned into segments at different sites
 - D) All of the above



- 6) Mobile application are divided into _____ applications.
- A) Horizontal and Vertical B) Public and Private
C) Public and Shared D) Public and Vertical
- 7) _____ seeks to improve performance through parallelization of various operations.
- A) Spatial Database System B) Parallel Database System
C) Mobile Database System D) None of these
- 8) Which of the following is/are the DDL statements ?
- A) Create B) Drop
C) Alter D) All of the above

B) State **True** or **False** :

6

- 1) Wireless application protocol allows users to access information instantly for wireless devices.
- 2) Raster data type consists of rows and columns of cells.
- 3) LIMIT clause is used to limit the number of rows displayed in MySQL.
- 4) Knowledge Base System data is stored in knowledge base If-then rules.
- 5) In parallel processing messaging and locking between nodes is handled by the Integrated Distributed Lock Manager (IDLm).
- 6) Shared disk systems permit high availability.

2. A) What is Knowledge Base System ? Explain different application of KBS. **7**
B) Explain different architectures of DDBMS. **7**
3. A) Explain Inter-operational and Intra-operation parallelism. **7**
B) What is GIS ? Explain different operations perform on GIS. **7**
4. A) Explain different data types in MySQL. **7**
B) What are the drawbacks of RDBMS ? **7**



5. A) Explain recovery in distributed database. 7
B) What is parallel database ? Explain three advantages and disadvantages. 7
6. A) Explain different challenges/drawbacks of mobile database. 7
B) What is OODBMS ? Explain the features of OODBMS. 7
7. Write short notes on (**any two**) : 14
- A) Multimedia Database
 - B) Two phase commit protocol
 - C) Cloud based databases
 - D) GIS Applications.
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Seat No.	
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**M.C.A. – II (Commerce) (Semester – IV) Examination, 2015
JAVA PROGRAMMING (Old)**

Day and Date : Wednesday, 6-5-2015
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 the correct alternative :

7

- 1) Which class cannot be instantiated in Java ?
i) abstract ii) parent iii) final iv) none of these
- 2) Runnable is a _____
i) class ii) method iii) variable iv) interface
- 3) Which method is used in JDBC to perform DML statements ?
i) executeQuery() ii) executeUpdate()
iii) execute() iv) none of these
- 4) Program which executes an applet is known as _____.
i) applet engine ii) jvm
iii) garbage collector iv) none of these
- 5) Thread class is available in _____ package.
i) java.io ii) java.util
iii) java.lang iv) java.sql
- 6) After compilation of java source code file java compiler creates _____ file.
i) .obj ii) .exe
iii) .jar iv) none of these
- 7) Which type of inheritance is not supported by java ?
i) single ii) multiple
iii) multilevel iv) none of these



- b) **True or False :** **7**
- 1) All methods of interface are public and abstract.
 - 2) Applet executes on server side.
 - 3) Garbage collection takes place automatically in JVM.
 - 4) JVM is platform independent.
 - 5) Transient instance variables are serialized.
 - 6) Type – IV driver offers better performance than Type-I.
 - 7) Static block executes before main method.
2. a) What is Thread ? Explain thread life cycle in detail. **7**
- b) Write a Java program to copy contents of one file into another file. **7**
3. a) Explain Event Delegation model in detail. **7**
- b) Explain different types of JDBC drivers. **7**
4. a) What is RMI ? What is marshalling and unmarshalling ? Explain. **7**
- b) What is an applet ? Write an applet to display a message “Welcome to applet”. **7**
5. Design an AWT/Swing frame to accept the number from the user. To calculate cube of number, Call PL/SQL function from java program which calculates cube of number and return the result. And display that result in the frame. **14**
6. Create your own exception class. Write a program to accept the number, if number is Prime then throw exception of your exception class type. Handle that exception to display appropriate message. **14**
7. Write a short note on (**any two**) : **14**
- i) Garbage Collection
 - ii) Enterprise JavaBean
 - iii) MVC architecture.
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Seat No.	
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**M.C.A. (Part – II) (Semester – IV) Examination, 2015
(Commerce and Management Faculty)
SOFTWARE TESTING AND QUALITY ASSURANCE (Old)**

Day and Date : Friday, 8-5-2015
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. Select the correct alternative. 14
- 1) Executing the same test case by giving the number of inputs on same build called as _____
 - a) Regression testing
 - b) Re-testing
 - c) Adhoc testing
 - d) Sanity testing
 - 2) The process starting with the terminal modules is called _____
 - a) Top-down integration
 - b) Bottom-up integration
 - c) Module integration
 - d) None of the above
 - 3) The _____ testing is performed in uncontrolled environment.
 - a) Alpha testing
 - b) Acceptance testing
 - c) Beta testing
 - d) None of the above
 - 4) A reliable system will be one that _____
 - a) Is unlikely to be completed on schedule
 - b) Is unlikely to cause a failure
 - c) Is likely to be fault-free
 - d) Is likely to be linked by the users
 - 5) The _____ and _____ are used within workbench to produce the right output products.
 - a) Tools and techniques
 - b) Procedures and standards
 - c) Processes and walkthrough
 - d) Review and update



- 6) Cyclomatic complexity method comes under which testing method ?
- a) White box
 - b) Black box
 - c) Green box
 - d) Yellow box
- 7) Calculate cyclomatic complexity for edges or links = 9, nodes = 8 and for independent paths.
- a) 3
 - b) 7
 - c) 2
 - d) None of these
- 8) Verification is _____
- a) are we building the right system
 - b) are we building the system right
 - c) performed by an independent test team
 - d) none of these
- 9) Which of the following is not phase of inspection process ?
- a) Overview
 - b) Planning
 - c) Rework
 - d) Design
- 10) The inputs for developing a test plan are taken from _____
- a) Project plan
 - b) Business plan
 - c) Support plan
 - d) None of the above
- 11) Acceptance testing will be done by _____
- a) User
 - b) Quality control
 - c) Quality assurance
 - d) Senior management
- 12) Main objective of configuration management _____
- a) Maintain baseline for each version
 - b) Build software libraries
 - c) Get the right change installed at the right time
 - d) None of these
- 13) Unit testing is a _____
- a) White box testing
 - b) Black box testing
 - c) Stress testing
 - d) None of these
- 14) Before doing integration testing this testing must have been done.
- a) Unit testing
 - b) Systems testing
 - c) Stress testing
 - d) All of the above



2. A) Define process improvement. What are the factors affecting process and product quality ? **(7×2)**
B) Write a note on verification and validation planning.
 3. A) What is automated static analysis ? **(7×2)**
B) Write about alpha testing and beta testing.
 4. A) Define test case. Prepare test case for E-mail ID validation. **(7×2)**
B) Define SQA. What are the different activities performed by SQA group in organization ?
 5. Write difference between following : **(7×2)**
 - a) Black box testing Vs. White box testing
 - b) Static testing Vs. Dynamic testing.
 6. Define test case. What are the different test case design techniques in detail ? **14**
 7. What is Tester's workbench ? Explain 11-steps of testing process. **14**
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Seat No.	
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**M.C.A. II (Semester – IV) Examination, 2015
(Commerce)
OBJECT ORIENTED ANALYSIS AND DESIGN (Old)**

Day and Date : Monday, 11-5-2015
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** from Q.No. 5, and 6.
3) Figures to the **right** indicates marks to a question or sub question.

1. A) Choose the right option. 7
- 1) In RUP horizontal axis depicts _____ and vertical axis depicts _____
- a) Time and Workflow b) Workflow and Time
c) Inception and Transition d) None
- 2) Object Oriented Software Engineering was given by
a) Booch b) Jacobson c) Rumbaugh d) Ritcher
- 3) _____ diagrams describe software components and their dependencies to each others.
- a) Deployment b) Component
c) Collaboration d) Object
- 4) It is a simple one-to-one mapping of a table to a class and the mapping of columns in a table to properties in a class
- a) Table-Multiple Class b) Table-class Mapping
c) Tables-Multiple Classes d) None
- 5) _____ are part of the range of extensibility mechanism provided by UML.
- a) Stereotypes b) Events
c) Triggers d) State



3. Answer the following : **2x7**
- a) Draw a sequence diagram for registering a new email account.
 - b) Explain any 2 approaches for identifying classes in a class diagram with an example.
4. Answer the following : **2x7**
- a) Explain mapping of object to relational data structure.
 - b) Explain Deployment Diagram.
5. MCA admission procedure is as follows :
- a) DTE advertises the date of MCA Entrance Examinations.
 - b) Student has to apply for Entrance Examinations.
 - c) Results announced by DTE.
 - d) Student has to fill up the option form to select the college of his/her choice.
 - e) DTE displays allotment list in the web site and intimation to all colleges.
 - f) Students should visit the allotted colleges and complete the admission procedure.
 - i) Draw the Activity Diagram for the above process.
 - ii) Draw Use Case diagram for the above process. **2x7**
6. A) Discuss the steps evolved in Requirements engineering.
- B) A premier Institute has well-stocked library providing services to various members viz. Students, research scholars, faculty members, visiting, . staff, staff. The Library has books journals, periodicals, magazine. newspaper and CD's. A member can borrow a book for a period of one week, journals and periodicals for two day and CD for one day. A fine Rs. 5/- per day will be charged for not returning on time. Draw a Class Diagram for the above summary. **2x7**
7. Short notes (**any 4**) : **14**
- a) Patterns
 - b) Inception Phase
 - c) Multi-tiered architecture
 - d) Adornments
 - e) Aggregation Vs Composition
 - f) Test cases.
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Seat No.	
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**M.C.A. Commerce (Part – II) (Semester – IV) Examination, 2015
OPTIMIZATION TECHNIQUES (Old)**

Day and Date : Wednesday, 13-5-2015
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.
4) **All** questions carry **equal** marks.

1. Select the correct alternative :

14

- 1) A feasible solution requires that all artificial variables is
 - a) greater than zero
 - b) less than zero
 - c) equal to zero
 - d) there are no special requirements on artificial variables; they may take on any value
- 2) In converting an equal constraint for use in a simplex table, we must add
 - a) a surplus variable
 - b) a slack variable
 - c) a surplus and a slack variable
 - d) an artificial variable
- 3) The Z_j row in a simplex table for maximization represents
 - a) gross profit
 - b) net profit
 - c) profit per unit
 - d) constraints
- 4) A decision model designed to help its user find the best alternative or decision rule according to some criteria is said to be
 - a) random
 - b) probabilistic
 - c) optimizing
 - d) satisfying
- 5) Which of the following constraints is not linear ?
 - a) $7A - 6B \leq 45$
 - b) $X + Y + 3Z = 35$
 - c) $2X + 10Y \geq 60$
 - d) $2XY + X \geq 15$
- 6) Which of the following is not a type of integer programming problem ?
 - a) pure integer programming problem
 - b) blending problem
 - c) zero-one programming problem
 - d) mixed-integer programming problem



- 7) The term channel with respect to queuing refers to
- a) the number of service facilities
 - b) the number of queues
 - c) the number of doors through which the arrivals may enter
 - d) the number of customers waiting in line
- 8) In the A/B/C designation for queuing systems, the B term represents information about
- a) arrival rates
 - b) service times
 - c) number of channels
 - d) size of the queue
- 9) The _____ criterion is used to find the alternative that maximizes the maximum payoff or consequence for every alternative.
- a) maximin
 - b) maximax
 - c) minimax
 - d) criterion of realism
- 10) The maximin criteria is a(n) _____ criteria.
- a) optimistic
 - b) neutral
 - c) pessimistic
 - d) can be any one of the above depending on the problem
- 11) _____ is the amount of inventory ordered that will minimize the total inventory cost.
- a) EOQ
 - b) LOQ
 - c) BOQ
 - d) ERP
- 12) The _____ is the number of items on hand when an order for more inventory is placed.
- a) safety stock
 - b) reorder stock
 - c) reorder point
 - d) bill of materials (BOM)
- 13) The main purpose of inventory management is usually to
- a) minimize the cost of purchasing inventory
 - b) maximize customer satisfaction
 - c) increase the safety stock level
 - d) minimize the overall cost of inventory
- 14) Consider a project that has an expected completion time of 60 weeks and a standard deviation of five weeks. What is the probability that the project is finished in 70 weeks or less (round to two decimals) ?
- a) 0.98
 - b) 0.48
 - c) 0.50
 - d) 0.02



2. A) Describe the transportation problem with its general mathematical formulation. **7**
 B) The supply and demand of 3 plants and 4 distribution centers with unit cost of transportation are given as **7**

	D1	D2	D3	D4	Availability
P1	19	30	50	12	7
P2	70	30	40	60	10
P3	40	10	60	20	18
Requirement	5	8	7	15	

Solve the problem by using VAM method.

3. A) What is Inventory Control ? Factors affecting inventory level. **7**
 B) Determine EOQ from the following data ordering cost 200 Rs. per order carrying cost 20% of the unit cost per year, unit cost Rs. 25, annual requirement Rs. 50,000. **7**
 i) If the annual requirement becomes 4 times the current i.e. Rs. 2,00,000 would the EOQ become 4 times the current one ? Why ?
 4. A) A department head has four subordinates and four tasks. The subordinates differ in efficiency and the tasks differ in their intrinsic difficulty. His estimate of the time each man would take to perform each task is given below. How should the tasks be allocated, one to a man, so as to minimize the total man hours ? **7**

Man				
Job	A	B	C	D
W	8	26	17	11
X	13	28	4	26
Y	38	19	18	15
Z	19	26	24	10

- B) Use simplex method to solve LPP **7**
 Maximize $Z = 3x_1 + 5x_2 + 4x_3$
 Subject to : $2x_1 + 3x_2 \leq 8$; $2x_2 + 5x_3 \leq 10$; $3x_1 + 2x_2 + 4x_3 \leq 15$
 all variables ≥ 0



5. A) Explain the various Decision Making Environment. 7
- B) Draw decision tree for following data and calculate EMV. Find most preferred decision. 7

Demand	Probability	Course of action		
		S1	S2	S3
Low (N1)	0.10	10	- 20	-150
Medium (N2)	0.50	50	60	20
High (N3)	0.40	50	100	200

6. A) Explain the components of a queuing model. 7
- B) A booking counter at New Delhi Railway station takes 10 minutes to book a ticket for each customer. If the customers are arriving according to a Poisson process with a rate of 4 per hour, find out 7
- Expected queue length
 - Expected waiting time of a customer in the queue
 - Expected time a customer spends in the system.
7. A small project is composed of 7 activities whose estimated are listed as follows : 14

Activity	Estimated Duration (weeks)		
	Optimistic	Most likely	Pessimistic
1 – 2	1	1	7
1 – 3	1	4	7
1 – 4	2	2	8
2 – 5	1	1	1
3 – 5	2	5	14
4 – 6	2	5	8
5 – 6	3	6	15

- Draw the project network.
 - Find the expected duration and variance.
 - If the project due date is 19 weeks, what is the probability of meeting the due date ?
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Seat No.	
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**M.C.A. (Commerce) (Part – I) (Semester – I) Examination, 2015
DATABASE MANAGEMENT SYSTEM**

Day and Date : Saturday, 9-5-2015
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.
3) Solve **any one** question from Q. No. 5 and 6.

1. A) Choose the correct alternative : 10

- 1) _____ function divides one numeric expression by another and returns the remainder.
A) POWER B) MOD C) ROUND D) REMAINDER
- 2) In E-R diagram generalization is represented by
A) Ellipse B) Dashed ellipse C) Rectangle D) Triangle
- 3) _____ is a virtual table that draws its data from the result of an SQL SELECT statement.
A) View B) Synonym C) Sequence D) Transaction
- 4) A table joined with itself is called
A) Join B) Self Join C) Outer Join D) Equi Join
- 5) A candidate key that is not the primary key is called an ____
A) Alternate key B) Derived key C) Foreign key D) All of these
- 6) Count function in SQL returns the number of
A) Values B) Distinct values C) Groups D) Columns
- 7) In a Hierarchical model records are organized as
A) Graph B) List C) Links D) Tree
- 8) Key to represent relationship between tables is called
A) Primary key B) Secondary key C) Foreign key D) None of these
- 9) DBMS helps achieve
A) Data independence B) Centralized control of data
C) Neither A) nor B) D) Both A) and B)
- 10) The users who use easy-to-use menu are called
A) Sophisticated end users B) Naïve users
C) Stand-alone users D) Casual end users

P.T.O.



- B) State whether **True/False** : **4**
- 1) All relations are tables, but not all tables are relations.
 - 2) All weak entities must have a minimum cardinality of 1 on the entity on which it depends.
 - 3) The clause SELECT COUNT (*) results in a table with a single row and a single column.
 - 4) The description of a database's structure that is stored within the database itself is called the " metadata".
2. Attempt the following (**any 2**) : **14**
- 1) What is a database ? Describe the advantages and disadvantages of DBMS.
 - 2) Write a PL/SQL block for a reverse number.
 - 3) Discuss the file organisation in detail.
3. Attempt the following (**any 2**) : **14**
- 1) Differentiate between DDL and DML.
 - 2) Explain the concept of a data model. What data models are used in database management systems ?
 - 3) Draw and explain the three level architecture of the database system.
4. Attempt the following : **14**
- 1) Discuss the failure classification in detail and its recovery mechanisms.
 - 2) What are the different types of database end users ? Discuss the main activities of each.
5. What is the need of the Normalization ? Explain the first three steps involved in the normalization. **14**
- Normalize the following up to 3nf.
- Application Serial Number, FIRST Name, Surname, Middle Name, Address
City, Pin Code, Phone Number, E-mail, Course Name, Application Date
Academic Year, Form Fee Receipt No., Form Fee Receipt Date, Form Fee Amount
Payment Mode, DD/Cheque Number.
6. A database is to be constructed to keep track of the teams and games of a sport league. **14**
- A team has a number of players, not all of whom participate in each game. It is desired to keep track of the players participating in each game of each team and the result of the game.
- Create an ER diagram, completely with attributes, keys and constraints for the above description. State any assumptions that you make.
7. Write short notes on (**any 2**) : **14**
- i) Joins in SQL
 - ii) Data independence
 - iii) Clauses in SQL.
-



- 5) _____ analyze, plan, execute measure marketing activities through all inbound and outbound.
- A) Campaign management
 - B) Enterprise, management
 - C) CRM
 - D) None of these
- 6) _____ defines BPR as “the fundamental rethinking and radical redesign of business process to achieve dramatic improvements.
- A) Dr. Michael Hammer
 - B) Dr. John Hammer
 - C) Dr. Michael Carthy
 - D) Dr. James
- 7) _____ is generally associated with the buying and selling of information, products and services via computer network.
- A) M-commerce
 - B) E-commerce
 - C) Internet commerce
 - D) All of these
- 8) A _____ is a collection of activities that takes one or more kinds of input and creates an output that is of value to the customer.
- A) Business process
 - B) ERP
 - C) ERP market
 - D) None of these
- 9) _____ is the time between placement of the order and delivery of the product.
- A) Cycle time
 - B) Procedure
 - C) Interval
 - D) Cycle interval
- 10) Intangible benefits _____ organizational transparency and responsibility.
- A) Degrades
 - B) Improves
 - C) Controls



- B) Define the terms : 4
 - 1) CRM
 - 2) DSS
 - 3) BPR
 - 4) OLAP.

 - 2. A) Describe different evolution of ERP with their key features. 7
 - B) Explain importance of ERP to the success or failure of an, business organization. 7

 - 3. A) Describe tangible and intangible benefits of ERP. 7
 - B) List out different ERP related technologies and explain any one in detail. 7

 - 4. Explain different ERP implementation strategies. 14

 - 5. Explain in brief different phases of BPR, enumerate advantages of BPR. 14

 - 6. Explain in brief about SCM and CRM along with their benefits. 14

 - 7. Write short note (**any two**) : 14
 - a) Data Mining
 - b) MIS
 - c) Sales and distribution.
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Seat No.	
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**M.C.A. (Part – II) (Semester – IV) (New) Examination, 2015
(Commerce and Management Faculty)
ADVANCED JAVA PROGRAMMING**

Day and Date : Wednesday, 6-5-2015
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) Fill in the blanks with appropriate options :

7

- 1) _____ is stateless protocol means that server doesn't remember user after it sends response.
a) FTP b) HTTP c) SMTP d) Telnet
- 2) _____ directive is defines page dependent attributes such as session tracking, error page, buffering requirement.
a) page b) taglib c) include d) scriplate
- 3) _____ class in java.net package represents a connectionless socket for sending and receiving messages.
a) Socket b) ServerSocket
c) Datagram Socket d) DatagramPacket
- 4) _____ method in RMI is used to find remote objects which has been bound in rmi registry.
a) Naming.bind() b) Naming.find()
c) Naming.rebind() d) Naming.lookup()
- 5) _____ JSTL library type contains actions for common operations like conditional processing, looping, URL encoding etc.
a) Core b) XML Processing
c) Formatting d) Database access
- 6) _____ protocol is used for secure online debit card transaction.
a) HTTP b) HTTPS c) SET d) None of these
- 7) RMI application interface must extend java.rmi._____ interface.
a) RemoteObject b) UnicastRemoteObject
c) Remote d) RemoteServer



- B) Simplify the **true** and **false** from following : 7
- 1) GET method is HTTP Request is idempotent.
 - 2) Service() JSP life cycle method handles request and gives response back.
 - 3) C2B is one of the type of ecommerce where seller is business organization and buyer is a consumer.
 - 4) Entity Bean is one of the types of Enterprise Java Beans.
 - 5) WEB-INF is called as deployment descriptor file contains entries of all servlets in application.
 - 6) “<%= %>” JSP page element is called as expression used to print data on browser.
 - 7) JAVA_HOME environment variable need to point to root to JDK installation directory.
2. A) Explain Servlet life cycle in detail. 7
B) Explain the architecture of RMI in detail. 7
3. A) State and explain default objects in JSP in detail. 7
B) Explain 4-C Payment Methods with SET protocol for credit card payment. 7
4. A) What is mean by Java Beans ? Explain with example. 7
B) Write a difference between GET and POST method in HTTP Request. 7
5. A) Explain different session tracking mechanisms in servlet. 7
B) Write a socket program for communication of client and server where server sends message to client. 7
6. A) Explain ServletContext with example. 7
B) What is mean by JSTL ? Explain different tags in core JSTL libraries. 7
7. Write a note on following :
- A) E-Cash. 5
 - B) JSP Directives. 5
 - C) Struts. 4
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Seat No.	
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**M.C.A. (Part – II) (Semester – IV) (Commerce) Examination, 2015
ADVANCED DEVELOPMENT TECHNOLOGY (New)**

Day and Date : Friday, 8-5-2015
Time : 3.00 p.m. to 6.00 p.m.

Max. Marks : 70

- Instructions :** 1) *Que. No. 1 and Que. No. 7 are compulsory.*
2) *Attempt any 2 Que. from Que. 2, 3 and 4.*
3) *Attempt any 1 Que. from Que. 5 and 6.*

1. A) Choose correct alternative : 10
- 1) Which of the following does not store a sign ?
A) short B) int C) long D) byte
 - 2) Which of the following can be declared as a virtual in a class ?
A) Method B) Property C) Event D) Field
 - 3) Which of the following is NOT a .NET Exception class ?
A) Exception B) StackMemoryException
C) DivideByZeroException D) OutOfMemoryException
 - 4) Number of constructors a class can define of
A) 1 B) 2
C) Any number D) None of above
 - 5) Keyword used to define call by reference parameter in C# .NET
A) & B) out C) ref D) &&
 - 6) ASP.NET separates the HTML output from program logic using a feature named as
A) Exception B) Code-behind
C) Code-front D) Default



- 7) _____ Control is used for Advertisement pages in ASP.Net.
- A) Ad rotator B) Placeholder
C) Literal D) Image map
- 8) Select the validation control for “Pattern Matching”
- A) Required Field Validator B) Range Validator
C) Regular Expression D) Compare Validator
- 9) Master Page having extension _____
- A) .aspx B) .asax C) .cs D) .Master
- 10) _____ is responsible for executing the program.
- A) CLR B) CTS C) GC D) FCL

B) State **True** or **False**.

4

- 1) ASP.NET automatically delete sessions after configurable timeout interval.
- 2) Only one object can be created from an abstract class.
- 3) Only one method can be called using a delegate.
- 4) Dataset is an in memory representation of the data in the format of XML at the client system.

2. A) Explain Data types in C#. 7
- B) What is Array in C# ? Explain different types of Array. 7
3. A) What is structure and enumeration in C# ? 7
- B) Explain ASP.NET Page Life Cycle in details. 7
4. A) What are different page navigation techniques in ASP.NET ? 7
- B) What are ASP.NET Validation controls ? 7



5. Explain the following object of ADO.Net with example : 14
- 1) Connection
 - 2) Dataset
 - 3) Data Adapter.
6. A) Write a program for static constructor. 7
- B) Write a program for overloading equal to relational operator. 7
7. Write a short note on (**any 2**) : 14
- 1) Interface
 - 2) Ajax
 - 3) Cross Page Posting
 - 4) Master Page.
-



Seat No.	
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**M.C.A. – II (Semester – IV) (Commerce) Examination, 2015
(New)
DATA WAREHOUSING AND DATA MINING**

Day and Date : Monday, 11-5-2015
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) Select correct alternative. 7
- 1) _____ is an essential process where intelligent methods are applied to extract data patterns.
- A) Data warehousing B) Data mining
C) Text mining D) Data selection
- 2) What is ETL Stand for ?
- A) Execute transmit and load B) Extract transform and load
C) Execute Transform and load D) All of these
- 3) The load and index is which of the following ?
- A) A process to reject data from the data warehouse and to create the necessary indexes
B) A process to load the data in the data warehouse and to create the necessary indexes
C) A process to upgrade the quality of data after it is moved into a data warehouse
D) A process to upgrade the quality of data before it is moved into a data warehouse
- 4) A star schema has what type of relationship between a dimension and fact table ?
- A) Many-to-many B) One to many
C) One to one D) None of these



- 5) Which of the following is not a kind of data warehouse application ?
- A) Information processing B) Analytical processing
C) Data mining D) Transaction processing
- 6) Which of the following is not a component of a data warehouse ?
- A) Metadata B) Current detail data
C) Lightly summarized data D) Component key
- 7) Which of the following is a not Data mining task ?
- A) Regression B) Classification
C) Clustering D) Inference of associative rules

B) State **True** or **False**.

7

- 1) Web usage mining refers to the discovery of user access patterns from web usage logs.
- 2) Bayesian classifier algorithm it assumes that the effect of an attribute value on a given class is independent of the values of the other attributes.
- 3) OLAP queries are relatively standardized and simple queries retrieving relatively few records.
- 4) Pivot allows an analyst to rotate the cube in space to see its various faces.
- 5) Loading data can be quite lengthy in ROLAP.
- 6) Partitioning strategy in data warehouse done to decrease performance and difficult to management of data.
- 7) That is regression model is used to predict missing or unavailable numeric data value.

2. A) What is Data Warehouse ? Explain the architecture of Data Warehouse. 7
- B) What is Metadata ? Explain role of metata in data warehouse. 7
3. A) Explain the different operation in OLAP. 7
- B) Explain designing schemas of multidimensional database. 7
4. A) What is Data Mining ? Explain KDD process. 7
- B) Explain the potential application of Data Mining. 7



5. A) What is Machine Learning ? Explain the types of machine learning with example. 7
- B) Explain Bayesians classification algorithm with example. 7
6. A) Explain Apriori algorithm with example. 7
- B) What is cluster analysis ? Explain the application of cluster. 7
7. Write short notes on **(any two)** : 14
- A) Data mining metrics
- B) DBMS versus Data warehouse
- C) Web mining.
-



Seat No.	
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M.C.A. (Part – II) (Commerce) (Semester – IV) (New) Examination, 2015
DESIGN AND ANALYSIS OF ALGORITHM

Day and Date : Wednesday, 13-5-2015

Max. Marks : 70

Time : 3.00 p.m. to 6.00 p.m.

- Instructions:** 1) Q. 1 and Q. 7 are **compulsory**.
2) Solve **any 2** questions from Q. 2 and Q. 4.
3) Solve **any one** question from Q. 5 and Q. 6.
4) Figure to the **right** indicates **full** marks.

1. State **True** or **False** :

14

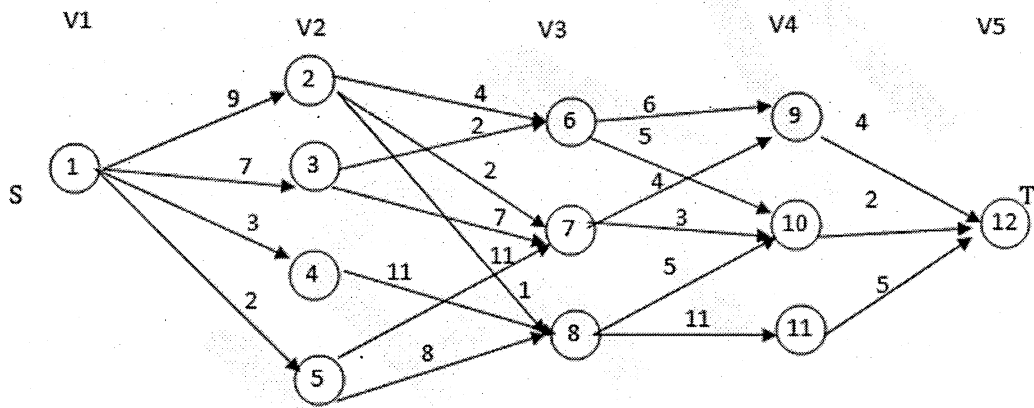
- a) RAM is one of the models used to evaluate performance of an algorithm which will be implemented as computer program.
- b) Algorithm must be language and hardware dependent.
- c) Worst-Case step count is minimum number of steps that can be executed for given parameters.
- d) Performance measurement is concern with obtaining the space and time requirements of a particular algorithm.
- e) A feasible solution that either minimizes or maximizes a given objective function is called as optimal solution.
- f) In traveling salesman problem, starting tour is denoted as ϕ .
- g) Traveling salesperson problem can be solved by using divide and conquer.



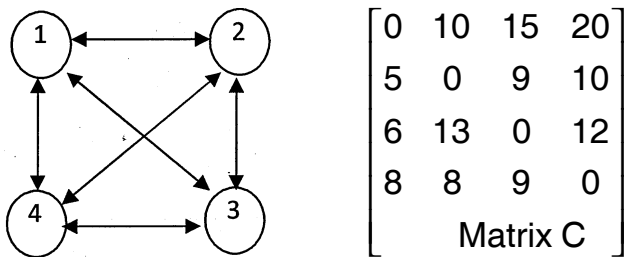
- h) A priori estimates referred as Performance Analysis and posteriori testing refers as Performance Measurement.
- i) Min Heap is a complete binary tree with the property that the value at each node is greater than or equal to the value at its children.
- j) Performance measurement is concern with obtaining the space and time requirements of a particular algorithm.
- k) The Space complexity can be calculated by considering data and its size.
- l) A program step is defined as a synthetically meaningful segment of a program that requires execution time which is dependent on the instance characteristics.
- m) $A[\text{Parent}(i)] \geq A[i]$ is true in case of Max heap.
- n) Worst case complexity of Heap sort algorithm is $O(n \log n)$.
2. A) Explain rules for step count method to calculate time complexity ? Write algorithm and calculate step count using table method for the algorithm to display Fibonacci series up to N nos. 7
- B) List out different asymptotic notation with their key characteristic and explain big O notation in detail. 7
3. A) Explain algorithm characteristics and algorithm specifications. 7
- B) Write algorithm for merge sort using Divide and Conquer method ? Sort the list {70, 20, 30, 40, 10, 50, 60}. 7
4. A) Describe the terms heap, max heap and min heap. Explain sort operations on heap with suitable example. 7
- B) Explain selection sort method ? Write algorithm and sort the array {5, 9, 3, 11, 7, 6} using selection sort method. 7



5. What is multistage graph ? Write algorithm and display minimum cost path for the following 5 stage graph using forward approach. 14



6. Explain importance of travelling salesman problem ? Find out the optimal tour cost for the following directed graph. 14



7. Solve **any two** questions :
- A) Differentiate between divide and conquer method and greedy method of problem solving ? 7
- B) Write algorithm and display minimum and maximum number from array {22,13, - 5, - 8, 15, 60, 17, 31, 47} using divide and conquer method. 7
- C) Write note on Branch and bond algorithm. 7



Seat No.	
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**M.C.A. – II (Commerce) (Semester – IV) (New) Examination, 2015
OPTIMIZATION TECHNIQUES**

Day and Date : Friday, 15-5-2015
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) Choose the correct alternative :

7

- 1) Which of the following relationship is not true ?
 - a) $L_q = L_s - (\lambda/\mu)$
 - b) $L_s = \lambda/(\mu - \lambda)$
 - c) $W_s = W_q + 1/\mu$
 - d) $W_q = \lambda[\mu(\mu - \lambda)]$
- 2) In the transportation problem number of allocation are compared with
 - a) $m + n + 1$
 - b) $n - m + 1$
 - c) $m + n - 1$
 - d) None of these
- 3) Game theory models are classified by the
 - a) Number of players
 - b) Sum of all payoffs
 - c) Number of strategies
 - d) All of these
- 4) A feasible solution to an LP problem
 - a) Must satisfy all the constraints simultaneously
 - b) Must be corner point of the feasible solution
 - c) Need not satisfy all constraints, only some of them
 - d) Must optimize the value of the objective function
- 5) Generally PERT technique deals with the project of
 - a) Repetitive nature
 - b) Non-repetitive nature
 - c) Deterministic nature
 - d) None of these
- 6) Total float of an activity is calculated by using formula
 - a) $L_j - t_{ij}$
 - b) $LS_{ij} - ES_{ij}$
 - c) $E_j - E_i$
 - d) $EF_{ij} - ES_{ij}$
- 7) If an opportunity cost value is used for an unoccupied cell to test optimality, it should be
 - a) Most negative value
 - b) Equal to zero
 - c) Most positive value
 - d) Any value



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

7

- 1) Assignment problems are solved by using MODI method.
- 2) Longest path required to complete the project is called critical path.
- 3) If an opportunity cost value is used for an unoccupied cell to test optimality, it should be most negative number.
- 4) The shortest possible time in which an activity can be performed assuming everything goes well is pessimistic time (t_p).
- 5) The intersection of any two constraints is an extreme point which is a corner of the feasible region.
- 6) If there are only two strategies, the payoff matrix has a saddle point.
- 7) The mean of exponential distribution is the expected time between arrivals.

2. Solve the following :

A) Solve the following LP problem by graphical method.

9

$$\text{Max } z = 80 x_1 + 120 x_2$$

Subject to

$$\text{i) } x_1 + x_2 \leq 15 \quad \text{ii) } 10 x_1 + 50 x_2 \leq 200 \quad \text{iii) } x_2 \leq 10$$

and $x_1, x_2 \geq 0$.

B) Write a dual of the following primal LP problem

5

$$\text{Max } Z = 3x_1 + x_2 + 2x_3 - x_4$$

Subject to

$$\text{i) } 2x_1 - x_2 + 3x_3 + x_4 \geq 1$$

$$\text{ii) } x_1 + x_2 - x_3 + x_4 \leq 3$$

and $x_1, x_2, x_3, x_4 \geq 0$.

3. A) The Taj service station has a central store where service mechanics arrive to take spare parts for the jobs they work upon. The mechanics wait in queue if necessary and are served on a first come first served basis. The store is managed by one attendant who can attend 8 mechanics in an hour on an average. The arrival rate of the mechanics averages 6 per hour. Assuming that the pattern of mechanics arrivals is Poisson distributed and the servicing time is exponentially distributed, determine W_s , W_q and L_q where the symbols carry their usual meaning.

7

B) Solve following LP problem by simplex method.

7

$$\text{Max } Z = 3x_1 + 2x_2$$

Subject to i) $x_1 + x_2 \leq 4$

$$\text{ii) } x_1 - x_2 \leq 2 \text{ and } x_1, x_2 \geq 0$$



4. A) Solve the following game by using maximin (minimax) principle, whose payoff matrix are given below : include in your answer
- i) Strategy selection for each player
 - ii) The value of the game to each player.

7

Player B

Player A	B1	B2	B3	B4	B5
A1	-2	0	0	5	3
A2	3	2	1	2	2
A3	-4	-3	0	-2	6
A4	5	3	-4	2	6

- B) Five different machines can process any of the five required jobs as follows with different profit resulting from each assignment.

7

	Machines				
	A	B	C	D	E
1	30	7	40	28	40
2	40	32	27	21	36
3	40	32	33	30	35
4	25	38	40	36	36
5	39	32	41	34	39

Find out the maximal profit possible through optimal assignment.

5. A small project has seven activities. The relevant data is given below :

14

Activity	1-2	2-3	2-4	2-5	3-4	4-6	5-6
Normal Duration (days)	3	3	5	4	4	3	3
Normal Cost (Rs.)	300	75	200	120	100	90	60
Crash Duration (days)	2	3	3	4	1	2	1
Crash Cost (Rs.)	450	75	300	120	190	130	110

Indirect cost for the project Rs. 300 per day.

- i) Draw the network diagram
- ii) Calculate normal duration of the project and normal cost
- iii) Find optimal duration with minimal cost.



6. A firm manufacturing a single product has three plants I, II and III. They have 60, 35 and 40 units, respectively during this month. The firm had made a commitment to sell 22 units to customers A, 45 units to customer B, 20 units to customer C, 18 units to customer D and 30 units to customer E. Find the minimum possible transportation cost of shifting the manufactured product to five customers. The net unit cost of transporting from the three plants to the five customers is given below :

14

	A	B	C	D	E
I	4	1	3	4	4
II	2	3	2	2	3
III	3	5	2	4	4

7. A) Given the following information regarding a project

7

Activity	1-2	2-3	2-4	3-5	3-6	4-6	5-7	6-7	7-8
t_o	4	5	4	10	15	8	4	1	6
t_m	6	7	8	18	20	9	8	2	7
t_p	8	15	12	26	25	16	12	3	8

- i) Construct an arrow diagram for this project.
 - ii) Determine the critical path and compute the project completion time.
 - iii) Determine the probability of completing the project in 55 days.
- B) Explain the following terms

7

- a) Dummy activity b) Critical path c) Total float
-



Seat No.	
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**M.C.A. (Commerce) (Part – III) (Semester – V) Examination, 2015
HUMAN COMPUTER INTERFACE**

Day and Date : Tuesday, 5-5-2015
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.
3) Solve **any one** question from Q. No.5 and 6.

1. A) Multiple choice questions :

6

- 1) The primary mode of textual data entry is
 - a) Pointing device
 - b) Speech recognition systems
 - c) Keyboard
- 2) _____ is the process of achieving goals within economical, technical and schedule constraint.
 - a) Design
 - b) Testing
 - c) Schema
- 3) _____ interaction method has higher error rates and need extensive user training.
 - a) Command
 - b) Menu
 - c) Formatted forms
- 4) _____ provides a list of choices through which user select a required one.
 - a) Formatted form
 - b) Dialog box
 - c) Menu
- 5) The time between user initiates the activity and computer completes the responses is called _____.
 - a) Response Time
 - b) User Planning Time
 - c) User Think Time
- 6) _____ testing is carried out by testing it on user.
 - a) Alpha
 - b) Beta
 - c) Acceptance



- B) **True/False :** **5**
- 1) Online manual information is available whenever the computer is available.
 - 2) The goal of interface design is to provide the best way for developer to interact with the computer.
 - 3) If we reduce the number of keystrokes the errors get increased.
 - 4) User interface is a component of computer system.
 - 5) Email is example of same place and different time co-operative system.
- C) **Define the terms :** **3**
- a) Display Rate
 - b) Hypermedia
 - c) Virtual Environment.
2. A) With neat diagram explain three pillars of design. **7**
- B) Explain different types of reasoning with examples. **7**
3. A) Explain Guidelines for data entry and data display. **7**
- B) What is Usability testing ? Explain Usability testing laboratory arrangement. **7**
4. A) Explain Eight Golden Rules of Interface Design. **7**
- B) What is participatory design ? Explain with suitable examples. **7**
5. Explain applications for asynchronous interactions and Synchronous distributed interactions in co-operative work. **14**
6. Explain with examples form filling design guidelines. **14**
7. Write short notes on **(any two) :** **(7×2)**
- a) Information Search
 - b) Speech recognition
 - c) Prevent Error.
-



- 6) _____ is “the application of knowledge, skills, tools and techniques to project activities to meet the project requirements”.
- a) project analysis
 - b) project management
 - c) project requirement
 - d) project re-engineering
- 7) The activities are usually organized in _____ and the process specifies what artifacts should be developed and delivered in each phase.
- a) distinct phases
 - b) queue
 - c) irregular manner
 - d) sequence
- 8) An effective quality system leads to increased productivity and permanently reduced costs because it enables management to reduce _____ costs by emphasizing prevention.
- a) analysis
 - b) implementation
 - c) defect correction
 - d) none of these
- 9) _____ can only be identified by those with a clear understanding of the technology, the people and the environment that is specific to the project at hand.
- a) Generic risk
 - b) Product-specific risks
 - c) Potential risk
 - d) Reactive risk
- 10) _____ is an activity that distributes estimated effort across the planned project duration by allocating the effort to specific software engineering tasks.
- a) software project allocation
 - b) software cost preparation
 - c) software project scheduling
 - d) software project maintenance
- 11) _____ is the series of inspections reviews, and tests used throughout the development cycle to ensure that each work product meets the requirements.
- a) Quality control
 - b) Quality testing process
 - c) Quality checking process
 - d) Quality appraisal process
- 12) _____ is a set of activities that have been developed to manage change throughout the life cycle of computer software.
- a) software quality management
 - b) software change management
 - c) software maintenance management
 - d) software configuration management



- 13) _____ is a procedural activity that ensures quality and consistency as changes are made to a configuration object.
- a) Change implementation b) Quality control
c) Change control d) Change approval process
- 14) _____ leader closely monitors the behavior and performance.
- a) Delegative b) Directive c) Participative d) Constructive

2. Answer **any two** of the following : **(2×7=14)**
- 1) Explain function point analysis procedure and its advantages.
2) Explain the categories of risks.
3) Explain role of user in project management.
3. Attempt **any two** from following : **(2×7=14)**
- 1) Explain ISO 9000 principles.
2) Explain empirical, heuristic and analytical cost estimation techniques.
3) Explain defect management concept and three defects strategies.
4. A) Explain Delphi cost estimation technique. **(2×7=14)**
B) Explain the characteristics of high performance management team.
5. Explain project management life cycle and the steps involved. **(1×14=14)**
6. What is project planning ? Explain project planning steps. **(1×14=14)**
7. Explain basic, intermediate and complete COCOMO models. **(1×14=14)**
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Seat No.	
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M.C.A. (Part – III) (Semester – V) Examination, 2015
(Commerce and Management Faculty)
EMERGING TRENDS IN INFORMATION TECHNOLOGY

Day and Date : Saturday, 9-5-2015
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) **All** questions carries **equal** marks.

1. Define following terms : 14
- 1) Biometric Technology
 - 2) Membership function
 - 3) Learning
 - 4) Classification
 - 5) Regression
 - 6) Clustering
 - 7) Activation function.
2. A) What is E-Banking ? Explain different techniques for E-Banking. 7
- B) Explain different machine learning tasks in detail. 7
3. A) What is fuzzy logic ? Explain applications of fuzzy logic. 7
- B) Explain Hand Geometry identification technology in detail. 7



- 4. A) What is embedded system ? Explain hardware components of embedded system. 7
 - B) Describe architecture of biological neural network in detail. 7

 - 5. A) Explain the components of fuzzy inference system. 7
 - B) Define Natural Language Processing ? Explain its applications. 7

 - 6. What is expert system ? Why it is needed ? Explain architecture of expert system. Also specifies tools and technologies used for developing expert system. 14

 - 7. Write a short note on (**any two**) : 14
 - 1) DNA
 - 2) Applications of Artificial Neural Networks.
 - 3) Iris Identification.
-



- 8) Which method is used to specify before any lines that uses the PrintWriter ?
- a) setPageType ().
 - b) setContentType ().
 - c) setContentType ()
 - d) setResponseType ().
- 9) 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
- 10) The getSession () method with 'true' as its parameter [getSession(true)] it will return the appropriate session object when
- a) the session is completed
 - b) the session object is passed to another method
 - c) the session does not exists
 - d) the session is existing
- 11) A script is a
- a) Program or sequence of instructions that is interpreted or carried out by processor directly
 - b) Program or sequence of instruction that is interpreted or carried out by another program
 - c) Program or sequence of instruction that is interpreted or carried out by web server only
 - d) None of above
- 12) Which of the following is not true ?
- a) PHP can be used to develop web applications
 - b) PHP makes a website dynamic
 - c) PHP applications can not be compiled
 - d) PHP can not be embedded into html
- 13) Which of the following variables is not a predefined variable ?
- a) \$get
 - b) \$ask
 - c) \$request
 - d) \$post
- 14) The difference between include () and require ()
- a) are different how they handle failure
 - b) both are same in every aspects
 - c) include () produced a Fatal Error while require results in a Warning
 - d) none of above



2. a) Draw block diagram of e-commerce architecture and explain. **7**
b) How to create user defined functions in PHP ? How to pass the parameters to the function ? Explain with example. **7**
 3. a) What are digital signature ? Explain their advantages and disadvantages. **7**
b) Discuss the scripting elements in JSP. **7**
 4. a) Differentiate between : **7**
 - i) Connectionless and Connection Oriented
 - ii) Stateless and Statefull.b) Discuss servlet life cycle. **7**
 5. Write a program in Servlet to demonstrate session management using Cookies and HttpSession. **14**
 6. Design a dynamic page using JSP. Write a code to connect to a 'Book' table (Assume suitable structure) and display all books detail in proper format. **14**
 7. Write PHP code to accept and insert employee details from employee. After successful insertion, display employee details in proper format. (Assume suitable fields) **14**
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Seat No.	
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**M.C.A. (Part – III) (Semester – V) Examination, 2015
(Commerce and Management Faculty)
MOBILE WIRELESS COMPUTING (IT Elective)**

Day and Date : Thursday, 14-5-2015
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.
3) Solve **any one** question from Q. No. 5 and 6.
4) Figure to the **right** indicate marks to a question or sub question.

1. Choose the correct alternative : 14

- 1) In a _____ process, the MS makes measurements and the network makes the decision.
A) Network-Controlled Handoff B) Mobile-Assisted Handoff
C) Mobile-Controlled Handoff D) None of above
- 2) The _____ network to connect subscribers to the wider telephony network.
A) public switched telephone B) packet switched
C) core circuit switched D) None of above
- 3) _____ is the process of changing the channel (frequency, time slot, spreading code, or combination of them) associated with the current connection while a call is in progress.
A) Roaming B) Switching C) Handoff D) Transmission
- 4) The basic service set (BSS) has an identification (ID) called the BSSID, which is the _____ of the access point servicing the BSS.
A) IP address B) MAC address C) Proxy D) All of above
- 5) Data items needed for operation are preloaded into the mobile unit is called _____ in disconnected operation.
A) Data Hoarding state B) Disconnected State
C) Reintegration State D) None of above
- 6) The _____ divides the whole frequency available into several frequency bands or channels depends on the number of users.
A) FDMA B) TDMA C) CDMA D) SDMA



- 7) _____ Service is a text messaging which allow you to send and receive text messages on your GSM Mobile phone.
 A) Videotext access B) Teletex transmission
 C) Short Messaging Service D) None of above
- 8) The length of the Personal Identification Number (PIN) code used in Bluetooth devices can vary between _____ and _____ octets.
 A) 1 and 4 B) 1 and 16 C) 1 and 5 D) 10 and 15
- 9) _____ Provides reliable, in-order delivery of packets to applications.
 A) UDP B) FTP C) TCP D) SMTP
- 10) _____ is perhaps the first operating system specifically designed for wireless sensor networks.
 A) PalmOS B) TinyOS C) LiteOS D) None of above
- 11) The broadcast Disk paradigm is based on a cyclic broadcast of pages (or objects) and a corresponding set of client cache management techniques.
 A) True B) False
- 12) Aglets is a Java based mobile agent platform and library for building mobile agents based applications.
 A) True B) False
- 13) GPRS stands for _____ .
- 14) SIM stands for _____ .
2. a) Explain IEEE 802.11 functioning. **7**
 b) Describe Basic cellular network structure. **7**
3. a) What is Broadcast data transfer ? **7**
 b) What is Wireless ATM ? **7**
4. a) Explain WAP-The Model. **7**
 b) What is Bluetooth ? **7**
5. Write the Wireless Sensor Network Applications. **14**
6. Explain in detail about media access control. **14**
7. Explain GSM Architecture with block diagram. **14**
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Seat No.	
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**M.C.A. (Commerce) Direct 2 Year Students (Bridge Course)
Examination, 2015
DISCRETE MATHEMATICAL STRUCTURE**

Day and Date : Monday, 18-5-2015
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.

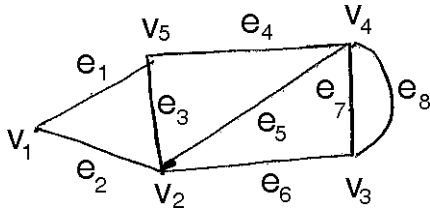
1. A) Choose the correct alternative :

10

- 1) Hasse diagram is used to represent
 - a) Equivalence relation
 - b) only transitive relation
 - c) only reflexive relation
 - d) partial relation
- 2) A system consisting of non empty set and one or more n-ary operations on it, is called
 - a) Algebraic system
 - b) lattice
 - c) relation
 - d) function
- 3) If R is a relation on set A and if R is reflexive, anti-symmetric and transitive then R is called as
 - a) Identity relation
 - b) Equivalence relation
 - c) Partial ordering
 - d) Universal relation
- 4) The floor function $F(4.3) = [4.3]$ is
 - a) 3.44
 - b) 4
 - c) 5
 - d) 4.33
- 5) The minimum number of edges in a connected graph with n vertices is
 - a) $n - 1$
 - b) n
 - c) $n + 1$
 - d) $(n + 1)/2$
- 6) A graph in which all vertices have same degree is called
 - a) Complete graph
 - b) Regular graph
 - c) Bi-partite graph
 - d) Sub graph
- 7) $P \rightarrow Q$ is equivalent to the statement
 - a) $P \wedge \sim Q$
 - b) $Q \wedge \sim p$
 - c) $\sim P \vee Q$
 - d) $Q \vee \sim p$



4. A) Find the adjacency and incidence matrices of the following graph. 10



- B) Let $A = \{10, 20, 30, 40, 50\}$ and R is the relation such that $R = \{(a, b) / a \leq b\}$.
 Show that R is partially ordering relation. Also construct the Hasse diagram. 10

5. A) If set $A = \{1, 2, 3, 4\}$ and R is the relation defined on set A is $R = \{(1, 2), (2, 4), (1, 3), (3, 2), (4, 1)\}$
 Find the transitive closure of R by Warshall's algorithm. 10

- B) Show that the sum of degrees of all the vertices in a graph is twice the number of edges. 10

6. A) How many words can be formed by using all letters of the word 'DAUGHTER' so that vowels are always together ? And vowels never come together ? 10
 B) Find transpose of the following matrix. Also find its determinant. 10

$$\begin{bmatrix} 2 & -1 & 0 \\ 3 & -5 & 2 \\ 1 & 4 & -2 \end{bmatrix}$$

7. Explain coding theory. Also define Hamming codes and parity checks. 20
 Determine the group code $e_H : B^3 \rightarrow B^6$, where $m = 3$ and $n = 6$.

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



Seat No.	
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**M.C.A. (Commerce) Direct 2 Year Students (Bridge Course)
Examination, 2015
OPERATING SYSTEM (Paper – II)**

Day and Date : Tuesday, 19-5-2015
Time : 11.00 a.m. to 2.00 p.m.

Max. 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 :

5

- 1) Round robin scheduling is essentially the preemptive version of _____
 - a) FIFO
 - b) Shortest job first
 - c) Shortest remaining
 - d) Longest time first
- 2) Multiprogramming systems _____
 - a) Are easier to develop than single programming systems
 - b) Execute each job faster
 - c) Execute more jobs in the same time
 - d) Are used only on large main frame computers
- 3) The solution to Critical Section Problem is : Mutual Exclusion, Progress and Bounded Waiting.
 - a) The statement is false
 - b) the statement is true
 - c) The statement is contradictory
 - d) None of the above
- 4) The state of a process after it encounters an I/O instruction is _____
 - a) Ready
 - b) Idle
 - c) Blocked/Waiting
 - d) Running
- 5) The number of processes completed per unit time is known as _____
 - a) Output
 - b) Throughput
 - c) Efficiency
 - d) Capacity

B) State **True** or **False** :

5

- 1) The most important task of the OS is to keep the CPU busy throughout the time.
- 2) For a single-processor system, there will be more running processes at a time.
- 3) The degree of multiprogramming describes the minimum number of processes.
- 4) In the mutual exclusion atleast one resource must be held in a non-sharable mode ; that is, only one process at a time can use the resource.
- 5) Paging is a memory-management scheme that permits the physical address space of a process to be noncontiguous.

C) One Line Answer :

(2×5=10)

- 1) FCFS
- 2) SJF
- 3) RR
- 4) Cooperating process
- 5) Thrashing.

2. A) Explain the mechanism of PCB. 10
 - B) What is mean by inter process communication ? 10
 3. A) What is demand paging and explain its performance ? 10
 - B) What is secondary storage structure ? 10
 4. Explain deadlock system model and deadlock prevention. 20
 5. Explain the concept of free space management and disk management. 20
 6. Make a brief comparison between distributed OS and parallel OS. 20
 7. Compare various concepts behind virtual memory. 20
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M.C.A. – I (Commerce) (Semester – II) (Old) Examination, 2015
PROBABILITY AND COMBINATORICS

Day and Date : Saturday, 16-5-2015
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.
3) Solve **any one** question from Q. No. 5 and 6.

1. A) Choose the correct alternative :

7

- 1) The $M_{x+y}(t)$ moment generating function of $X + Y$ is given by _____
a) $M_x(t)M_y(t)$ b) $M_{xy}(t)$ c) $(x + y)M(t)$ d) None of these
- 2) The mean of Uniform distribution is _____
a) np b) $(a + b)/3$ c) $(a + b)/2$ d) $(a - b)^2/12$
- 3) The number of r-permutation when repetition allowed is given by _____
a) $n!/r!(n - r)!$ b) $n!/(r - n)!$ c) $n!/(n - r)!$ d) n^r
- 4) The value of n in the equation $C(n, 20) = C(n, 5)$ is _____
a) 30 b) 5 c) 25 d) 15
- 5) A derangement is a _____ of objects that leaves no object in its original position.
a) Combination b) Permutation
c) Grouping d) None of these
- 6) The probability of getting both heads when two coins are tossed at a time is _____
a) $1/3$ b) $1/4$ c) 0.5 d) 0.125
- 7) A non-homogeneous recurrence relation has characteristic roots of associated homogeneous part as 2 and 3 then particular part of solution of $F(n) = 2^n$ is _____
a) P_0 b) P_0n c) $n^1(P_0)2^n$ d) None of these

P.T.O.



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

7

- 1) The number of ways 4 person can seat around a circular table for lunch is 24.
- 2) If X and Y are two independent random variable then $E(XY) = E(X).E(Y)$.
- 3) If a and b are constant then $E(aX + b) = aE(X) + b$.
- 4) The normal distribution of curve is symmetric about the line $x = \mu$.
- 5) An event is subset of sample space.
- 6) Two events E and F are dependent, if and only if $P(E \cap F) = P(E) \times P(F)$.
- 7) Central moments are invariant to the change of origin but not to be change of scale.

2. A) State and prove Pigeonhole principle.

7

B) Let the joint p.m.f. of two discrete random variable (X, Y) is as follows :

7

X\Y	-2	0	2
-1	0.1	0.2	0.1
0	0.2	0.1	0.1
1	0.1	0.1	0

i) find $P(X + Y \leq 2)$

ii) Conditional probability of Y given $X = 1$.

3. A) In how many ways can 10 boys and 5 girls stand so that no two girls are next to each other if they are standing

i) along a straight line ?

ii) Around a circle ?

7

B) Define exponential distribution. And find its mean and variance.

7



4. A continuous random variable X has p.d.f. given by **14**
- $$f(x) = \begin{cases} 12x^3 - 21x^2 + 10x & 0 \leq x \leq 1 \\ 0 & \text{otherwise} \end{cases}$$
- i) Find $P(x \leq 1/2)$
- ii) $P(x > 1/2)$
- iii) Find k such that $P(x \leq k) = 1/2$.
5. A) Find the coefficient of xyz^2 in the expansion of $(2x - y - z)^4$. **7**
- B) State and prove Baye's theorem. **7**
6. A) Define Binomial Distribution and state its applications. **7**
- B) Determine the discrete numeric function of generation function $A(z) = 1/(1 - z^3)$. **7**
7. A) Solve the recurrence relation $a_n = 2a_{n-1} + n^2$ for $n > 1$ subject to the initial condition $a_1 = 4$. **7**
- B) Prove $C(n, r) = C(n - 1, r) + C(n - 1, r - 1)$. **7**
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Seat No.	
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**M.C.A. – I (Semester – II) Examination, 2015
(Commerce)
OBJECT ORIENTED PROGRAMMING WITH C++**

Day and Date : Wednesday, 6-5-2015
Time : 11.00 a.m. to 2.00 p.m.

Max. Marks : 70

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

1. Choose the correct alternative : **10**
- 1) A friend function to a class, C cannot access
 - a) Private data members and member functions
 - b) Public data members and member functions
 - c) Protected data members and member functions
 - d) The data members of the derived class of C
 - 2) The operator that cannot be overloaded is
 - a) ++
 - b) ::
 - c) ()
 - d) ~
 - 3) A struct is the same as a class except that
 - a) There are no member functions
 - b) All members are public
 - c) Cannot be used in inheritance hierarchy
 - d) It does have a this pointer
 - 4) Pure virtual functions
 - a) Have to be redefined in the inherited class
 - b) Cannot have public access specification
 - c) Are mandatory for a virtual class
 - d) None of the above



- 5) Additional information sent when an exception is thrown may be placed in
- a) The throw keyword
 - b) The function that caused the error
 - c) The catch block
 - d) An object of the exception class
- 6) This pointer
- a) Implicitly points to an object
 - b) Can be explicitly used in a class
 - c) Can be used to return an object
 - d) All of the above
- 7) Data members which are static
- a) Cannot be assigned a value
 - b) Can only be used in static functions
 - c) Cannot be defined in a Union
 - d) Can be accessed outside the class
- 8) Which of the following is false for cin ?
- a) It represents standard input
 - b) It is an object of istream class
 - c) It is a class of which stream is an object
 - d) Using cin the data can be read from user's terminal
- 9) It is possible to declare as a friend
- a) a member function
 - b) a global function
 - c) a class
 - d) all of the above
- 10) In multiple inheritance
- a) the base classes must have only default constructors
 - b) cannot have virtual functions
 - c) can include virtual classes
 - d) none of the above

2. Answer in **1 – 2** sentences :

(5×2)

- 1) What is the destructor ?
- 2) Define Abstraction.
- 3) What is operator overloading ?
- 4) What is the use of friend function in cpp ?
- 5) Define inheritance.



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

- 1) State the features of object oriented programming. Compare object oriented system with procedure oriented system.
- 2) What is the friend class ? Illustrate the friend as a bridge.
- 3) What is constructor ? Explain with the help of example.
- 4) What is virtual function ? Explain with the example.
- 5) What is cin and cout ? Illustrate with example.
- 6) Differentiate between class and structure in cpp.

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

- 1) Write a C++ program to count number of objects of certain classes.
- 2) What is exception ? How it is handled in cpp ? Explain with example.
- 3) Write a note on multilevel inheritance with an example.

5. Attempt the following : **10**

Write a C++ program to define a class TIME with hour, minutes and seconds as a data members and read (), display () and add () as member functions.



Seat No.	
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M.C.A. (Part – I) (Semester – II) Examination, 2015
OPERATING SYSTEM CONCEPTS
(Commerce)

Day and Date : Friday, 8-5-2015
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. A) Choose correct alternative. 5
- 1) The page replacement policy that sometimes leads to more page faults when the size of the memory is increased
 - a) FIFO
 - b) LRU
 - c) no such policy exists
 - d) none of the above
 - 2) Necessary conditions for deadlock are
 - a) no-preemption and circular wait
 - b) Mutual exclusion and Hold & wait
 - c) Both a) and b)
 - d) None of the above
 - 3) A process can be
 - a) single threaded
 - b) multithreaded
 - c) both a) and b)
 - d) none of the mentioned
 - 4) 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
 - 5) Which of the following scheduling algorithms gives minimum average waiting time ?
 - a) FCFS
 - b) SJF
 - c) RR
 - d) Priority



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

5

- 1) Solution to the problem of internal fragmentation is compaction.
- 2) Process is program in execution.
- 3) A smaller page size leads to smaller page tables.
- 4) System calls do not change to privilege mode of the processor.
- 5) A smaller page size leads to fewer page faults.

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

(5×2)

- 1) What is Interrupt ?
- 2) What are the different types of I/O communication techniques ?
- 3) What is process and thread ?
- 4) What are the States of a process ?
- 5) What do you mean Thrashing ?

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

(4×5)

- 1) Explain NOS architecture in detail.
- 2) Explain the need for synchronization.
- 3) What is process ? Describe in detail structure and purpose of PCB.
- 4) Differentiate Preemptive and Non-Preemptive scheduling.
- 5) Explain RAID structure.

4. Attempt **any two** from following.

(2×10)

- 1) Explain various types of distributed operating system with example.
- 2) 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)

- 3) Write and Explain an algorithm for readers-writers problem in detail.



5. Attempt the following.

(1×10)

Consider the following snapshot of a system

Process	Allocation	Max	Available
P ₀	0 0 1 2	0 0 1 2	1 5 2 0
P ₁	1 0 0 0	1 7 5 0	
P ₂	1 3 5 4	2 3 5 6	
P ₃	0 6 3 2	0 6 5 2	
P ₄	0 0 1 4	0 6 5 6	

Answer the following questions using Banker's algorithm :

- a) What is Content Matrix Need ?
- b) Is the system in a Safe State ?
- c) If a request from process P1 arrives for (0 4 2 0) can request be granted immediately ?



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**M.C.A. – I (Commerce) (Semester – II) Examination, 2015
WEB TECHNOLOGY**

Day and Date : Monday, 11-5-2015
Time : 11.00 a.m. to 2.00 p.m.

Max. Marks : 70

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

1. A) Choose correct alternative : 5
- 1) In PHP, variable name preceded with _____ character.
 - a) &
 - b) \$
 - c) #
 - d) None of these
 - 2) The _____ colour is the default colour of hyperlink.
 - a) Yellow
 - b) Red
 - c) Green
 - d) None of these
 - 3) _____ is not a value of text decoration property.
 - a) Underline
 - b) Outerline
 - c) Blink
 - d) Linethrough
 - 4) Parameters sent to PHP script by HTML form using GET and POST can be accessed by one environment variable, it is
 - a) \$_GET
 - b) \$_POST
 - c) \$_PARAMS
 - d) \$_REQUEST
 - 5) DTD stands for
 - a) Document Type Definition
 - b) Data Type Definition
 - c) Double Type Data
 - d) None of these
- B) **True and False :** 5
- 1) In PHP we can sort an associative array by value with `asort()` function.
 - 2) Default method of form tag is POST.
 - 3) Imagemap allows us to specify different areas of an image in our code.
 - 4) `fgets()` function in PHP is used to write arbitrary amounts of data in file.
 - 5) To access a global variable within function in PHP we use global keyword with variable.



2. Answer in **1-2** sentences : **(5×2=10)**
- i) Define web publishing.
 - ii) What is DHTML ?
 - iii) Mention types of list.
 - iv) List out data types in PHP.
 - v) Define W3C.
3. Attempt **any four** from following : **(4×5=20)**
- i) Explain different features of XML.
 - ii) Explain string functions in Javascript.
 - iii) Explain Object Oriented PHP.
 - iv) Explain table tag with the help example.
 - v) Write a Javascript program to accept array elements. And print them in ascending order.
 - vi) Create a HTML form that accepts firstname and lastname of user. Write a PHP script that saves this data into file.
4. Attempt **any two** from following : **(2×10=20)**
- i) What is CSS ? What are the types of CSS ? Write a HTML code to demonstrate External CSS.
 - ii) Explain session tracking in PHP and also explain all session functions with example.
 - iii) What is Document Object Model ? Explain history, screen and navigator objects.
5. Design HTML form to accept e-mail, message and date from user. Insert this information in table in database with name Inbox. **10**
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Seat No.	
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**M.C.A. (Commerce – I) (Semester – II) Examination, 2015
SOFTWARE ENGINEERING**

Day and Date : Wednesday, 13-5-2015
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) What are the qualities of good software ?
 - a) Reusability
 - b) Portability
 - c) Interoperability
 - d) All of above
 - 2) Which of the following tool is not considered at system design phase ?
 - a) DFD
 - b) Decision Table
 - c) Pie chart
 - d) System flow chart
 - 3) For which of the following phase, system analyst is not responsible ?
 - a) Maintenance
 - b) Design
 - c) Testing
 - d) Operation and use
 - 4) Black box testing, also called
 - a) Behavioural testing
 - b) Structural testing
 - c) Unit testing
 - d) System testing
 - 5) The process of changing a system after it has been delivered and is in use is called
 - a) Configuration management
 - b) Software maintenance
 - c) Software re-engineering
 - d) Software refactoring
- B) State **true** or **false** : 5
- 1) RAD stands for Rapid Application Development.
 - 2) ERD is used for Database design.
 - 3) CASE stands for Cost Aided Software Engineering.
 - 4) Data about data is called Meta Data.
 - 5) Forward engineering is one of the tools of legacy system.
2. Answer in **1-2** sentences : 10
- 1) When prototyping model is useful ?
 - 2) Define SRS.
 - 3) Define reverse engineering.
 - 4) What are the types of maintenance ?
 - 5) State the merits of decision table.



3. Attempt **any four** from the following : **20**
- 1) Discuss the role of system analyst in designing and implementing information system.
 - 2) Write short note on Agile Process.
 - 3) What are the principles of output design ?
 - 4) Write down the characteristics of SRS.
 - 5) Discuss the benefits of prototyping model over other models.
 - 6) Explain different components of interface design.
4. Attempt **any two** from the following : **20**
- 1) Explain the RAD system development models in details.
 - 2) Explain different fact finding techniques in details.
 - 3) At a funfair, the authorities have introduced certain rules for admission fees as
 - i) No fee will be charged for children below 5 years.
 - ii) On weekends, 50% rebate will be given to group of more than 4 people.
 - iii) On weekdays, 20% rebate will be given to group of more than 4 people.
 - iv) Daily 20% rebate will be given to students.Draw the decision table and decision tree for above system.
5. Draw ERD and DFD for Library Management System. **10**
-