SLR-H – 1

Seat No.	

M.C.A. (Commerce) (Part – I) (Semester – I) (New) (CBCS) Examination, 2015
COMPUTER ORGANIZATION AND ARCHITECTURE

Day and Date : Wednesday, 2-12-2015 Max. Marks : 70
Time : 10.30 a.m. to 1.00 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) MIMD stands for
   A) Multiple Instruction Multiple Data
   B) Multiple Instruction Memory Data
   C) Memory Instruction Multiple Data
   D) Multiple Information Memory Data

2) The circuit used to store one bit of data is known as
   A) Encoder B) OR gate C) Flip Flop D) Decoder

3) The number of times the page appear in the cache memory is called
   A) Hit B) Miss
   C) Hit Ratio D) All of these

4) After Reset the 80386 starts instruction fetch from the address
   A) FFFFF0 B) FFFFFFF C) FFFFFFF0 D) All of these

5) The NAND gate output will be low if the two inputs are
   A) 00 B) 01 C) 10 D) 11

6) Half adder consists of _____ & _____Gates.
   A) EX-OR&AND B) EX-OR&OR
   C) EX-OR&NOT D) None of these

7) The addressing mode used in the instruction Add R1, (1001)
   A) Direct addressing
   B) Register addressing
   C) Immediate addressing
   D) Indirect addressing

8) The memory in which following information is lost when power is
   A) Virtual memory B) Dynamic RAM
   C) Static RAM D) Associative memory

P.T.O.

B) State **True** or **False** : **6**

1) Parallel Processing increase response time and throughput.
2) In MISD single data stream is fed into multiple processing units.
3) Clock speed and bandwidth not affect on performance of processor.
4) The Stack pointer is 8 bit register.
5) In Hardwired control unit it is easy to add new instructions.
6) Demultiplexer has many inputs and one outputs.

2. A) What is Demultiplexer ? Explain 1:8 DUX. **7**

   B) What is counter ? Explain 4-bit Synchronous counter. **7**

3. A) What is Parallel Processing ? Explain Flynn's classification detail. **7**

   B) Explain DMA transfer modes. **7**

4. A) Explain Half Adder and Full Adder. **7**

   B) What is Shift Register ? Explain Serial in Parallel Out. **7**

5. A) What are the different components of Microprocessor. **7**

   B) Explain superscalar with Pentium microprocessor. **7**

6. What are the break through in microprocessor ? Explain 80486 microprocessor in detail. **14**

7. Write a short note on : **14**

   A) Encoder

   B) Logic gates

   C) Master Slave J-K flip flop.

SLR-H – 2

Seat No.	

M.C.A. – I (Semester – I) (Commerce) Examination, 2015
C PROGRAMMING (New CBCS)

Day and Date : Friday, 4-12-2015 Max. Marks : 70
Time : 10.30 a.m. to 1.00 p.m.

Instructions : *1) Q. **1** and Q. **7** are **compulsory**.*
*2) Attempt **any 2** Q. from Q, **2**, Q. **3**, and Q. **4**.*
*3) Solve **any 1** Q. from Q. **5** and Q. **6**.*

1. A) State whether the statement is **true** or **false** : **4**
   1) Static variable has to be explicitly declared using the keyword static.
   2) C is the middle level language.
   3) Size of float data type is 8 byte.
   4) Malloc () function can be used to allocate memory for static allocation.

   B) Define the following terms : **10**
   1) Pointer
   2) Recursion
   3) Structure
   4) Flowchart
   5) Dynamic memory allocation.

2. Attempt the following : **(7×2=14)**

   A) Discuss the different rules of declaring variable.

   B) Explain the switch statement with example.

3. Attempt the following : **(7×2=14)**

   A) Write a program which reads an integer number and reverse its digit.

   B) Differentiate between Structure and Union.

P.T.O.

4. Attempt the following : **(7×2=14)**

   A) What is String ? Explain some predefined string functions.

   B) Write a function for swapping of two numbers.

5. Write down a program for copy the content of one file into other file. **14**

6. What is Array ? Discuss the different types of array and write a program for Transpose of a matrix. **14**

7. Write short note on (**any 2**) : **14**

   1) File modes

   2) Data types

   3) Call by value and Call by reference.

SLR-H – 3

Seat No.	

M.C.A. (Commerce) (Part – I) (Semester – I) Examination, 2015
DATABASE MANAGEMENT SYSTEM (New CBCS)

Day and Date : Monday, 7-12-2015 Total Marks : 70
Time : 10.30 a.m. to 1.00 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 the correct alternative : **10**

1) The _____ refers to the way data is organized in and accessible from DBMS.

a) Database hierarchy b) Data organization
c) Data sharing d) Data model

2) A data dictionary is a special file that contains

a) The name of all fields in all files
b) The width of all fields in all files
c) The data type of all fields in all files
d) All of the above

3) Which of the following is not a logical operator in SQL ?

a) = b) BETWEEN
c) LIKE d) NOT

4) _____ attributes are the attributes that do not exist in the physical database, but their values are derived from other attributes present in the database.

a) Simple attribute
b) Composite attribute
c) Derived attribute
d) All of the above

5) To delete a particular column in a relation the command used is

a) UPDATE b) DROP
c) ALTER d) DELETE

P.T.O.

6) The _____ operator is used to search for values that are within a set of values, given the minimum value and the maximum value.

a) BETWEEN b) LIKE

c) AND d) UNIQUE

7) In E-R diagram generalization is represented by

a) Ellipse

b) Dashed ellipse

c) Rectangle

d) Triangle

8) A key to represent relationship between tables is called

a) Primary key

b) Secondary key

c) Derived key

d) Foreign key

9) Data encryption techniques are particularly useful for _____

a) Reducing storage space requirements

b) Improving data integrity

c) Protecting data in data communication systems

d) All of the above

10) A data manipulation command combines the records from one or more tables is called

a) SELECT

b) PROJECT

c) JOIN

d) PRODUCT

B) State whether **True**/**False** : **4**

1) Primary key is one of the candidate keys that uniquely identifies each row in the relation.

2) The DATE data type of Oracle occupies 8 bytes.

3) An entity set that does not have a key attribute is called weak entity set.

4) An integrity constraint specifies an expression that must always be true for every row in the table.

2. Attempt the following : **14**

   A) What is normalization ? Explain all normal forms.

   B) What do you mean by data model ? Explain the types of data model in detail.

3. Attempt the following : **14**

   A) Explain the integrity constraints : Not Null, Unique and Primary key with an example each. Is the combination 'Not Null, Primary Key' a valid combination ? Justify.

   B) Differentiate between DDL and DML.

4. Attempt the following : **14**

   A) What are the different types of database end users ? Discuss the role of DBA in DBMS.

   B) What is Procedure ? Write down the syntax for procedure along with one example.

5. Attempt the following **(any 2)** : **14**

   A) Consider the relations defined below :

   PHYSICIAN (regno, name, telno, city)

   PATIENT (pname, street, city)

   VISIT (pname, regno, data_of_visit, fee).

   Where the regno identifies the physician uniquely.

   And pname identifies the patient uniquely.

   Express queries (i) to (iii) in SQL.

   i) Get the name and regno of physicians who are in Delhi.
   ii) Find the name and city of patient(s) who visited a physician on 31 August 2004.
   iii) Get the name of the physician and the total number of patients who have visited her.
   iv) What does the following SQL query answer ?

   SELECT DISTINCT name FROM PHYSICIAN P WHERE NOT EXISTS

   (SELECT *FROM VISIT WHERE regno = p.regno).

B) Explain any five built in functions of Oracle with suitable examples.

C) What is cursor ? Explain its types with syntax.

6. Attempt the following : **14**

A) Information about a bank is about customers and their account. Customer has a name, address which consists of house number, area and city, and one or more phone numbers. Account has number, type and balance. We need to record customers who own an account. Account can be held individually or jointly. An account cannot exist without a customer. Normalize the data and create the tables.

B) Draw an E-R diagram. Clearly indicate attributes, keys, the cardinality ratios and participation constraints.

7. Write short notes on **(any 2)** : **14**

i) Data Independence.

ii) Group By clause in SQL.

iii) Views in SQL.

SLR-H – 4

Seat No.	

M.C.A. – I (Semester – I) (Commerce) Examination, 2015
DISCRETE MATHEMATICS (New CBCS)

Day and Date : Wednesday, 9-12-2015 Total Marks : 70

Time : 10.30 a.m. to 1.00 p.m.

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. Fill in the blanks. **14**

   1) A _____ is a connected acyclic graph.

   2) The ceiling function C (5.6) = [5.6] is _____.

   3) If R is a relation on set A and if R is reflexive, anti-symmetric and transitive then R is called as _____.

   4) A graph in which all vertices have same degree is called as _____.

   5) A vertex of degree zero is called _____.

   6) If f (x) = y, then y is called as _____ of x.

   7) ~ (p ^ q) ≡ _____.

2. A) Write Warshall's Algorithm. Using Warshall's Algorithm, find all the transitive closure of the relation R = {(1, 2), (2, 3), (3, 3)} on the set A = {1, 2, 3}. **7**

   B) Construct the truth table for : ($(p \rightarrow q)$ ^ $(q \rightarrow r)$) <–> $(p \rightarrow r)$. **7**

3. A) Determine whether the following proposition is equivalence.

   P –> (Q ν R) ⇔ (P –> Q) ν (P –> R). **7**

   B) What is lattice ? Explain its types. **7**

P.T.O.

4. A) What is r-permutation of n elements ? Explain circular permutation. **7**

   B) Three unbiased coins are tossed.

   a) Write the sample space S.

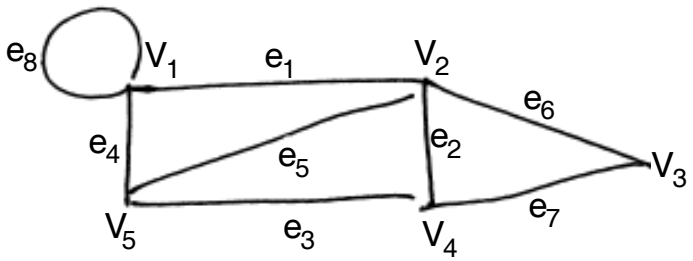
   b) Find the probability of

   i) All heads

   ii) At least 2 heads

   iii) At most 2 heads. **7**

5. Explain the adjacency a matrix and incidence matrix.Find the adjacency and incidence matrices of the following graph. **14**



6. Explain the terms (**any 2**) : **14**

   i) Equivalence relation

   ii) Inference Theory

   iii) Tree.

7. What is group code ?

   Also determine the codeword generated by the following. **14**

   0 1 1

   1 0 1

   0 1 0

   1 0 0

   0 1 0

   0 0 1

SLR-H – 5

Seat No.	

M.C.A. – I (Semester – I) (Commerce) Examination, 2015
(New-CBCS)
PRINCIPLES OF MANAGEMENT

Day and Date : Friday, 11-12-2015 Max. Marks : 70
Time : 10.30 a.m. to 1.00 p.m.

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

1. A) State **True** or **False** : **5**
   1) Short term goals are a means to achieve long term goals.
   2) Identification of a problem preceded it diagnosis.
   3) Coordination is considered as an important and separate function of management.
   4) Principle of division of work adopted in an organisation not results in specialization.
   5) Span of management is not same as span of authority or span of responsibility.

   B) Choose the correct option : **5**
   1) The purpose of job enrichment is to
      a) expand the number of tasks an individual can do
      b) increase job efficiency
      c) increase job effectiveness
      d) increase job satisfaction of middle management
   2) The concept of power refers to
      a) defined authority and responsibility
      b) a relative hierarchical position in an organization
      c) the ability to influence the behaviour of others
      d) the specialized knowledge possessed by an individual
   3) A major problem with a task force type of management is
      a) there is no logical basis for task force information
      b) accountability
      c) its status is too inflexible
      d) lack of planning

P.T.O.

4) Some policies are imposed by external forces, such as
   a) governmental regulatory agencies
   b) employee demands
   c) management decisions
   d) lack of funding

5) While guiding organization members in appropriate directions, a manager exhibits
   a) consideration behaviour
   b) authoritarian behaviour
   c) theory Y behaviour
   d) leadership behaviour

2. Answer in **1-2** sentences : **10**
   i) Levels of management.
   ii) Define the concept of MBO.
   iii) What do you mean by informal organisation ?
   iv) Define organisation behaviour.
   v) What do you mean by formal group ?

3. Attempt **any four** from following : **20**
   i) Discuss in detail Scientific Management concept.
   ii) Explain steps in planning process.
   iii) Discuss in detail functions of organisation.
   iv) Define leadership. Discuss types of leadership.
   v) Difference between Team and Group.
   vi) Discuss process of controlling.

4. Attempt **any two** from following : **20**
   i) Define management. Explain in detail the functions of management.
   ii) Discuss in detail meaning and process of decision making.
   iii) What do you mean by organisation behaviour ? Discuss factors affecting on personality.

5. What do you mean by staffing ? Explain in detail the process of staffing. **10**

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SLR-H – 6

Seat No.	

M.C.A. (Commerce) (Part – I) (Semester – I) (Old) Examination, 2015
COMPUTER ORGANIZATION AND ARCHITECTURE

Day and Date : Wednesday, 2-12-2015 Total Marks : 70
Time : 10.30 a.m. to 1.00 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) MIMD stands for _____
   A) Multiple instruction multiple data
   B) Multiple instruction memory data
   C) Memory instruction multiple data
   D) Multiple information memory data

2) The number of times the page appear in the cache memory is called _____
   A) Hit B) Miss
   C) Hit Ratio D) All of these

3) The NAND gate output will be low if the two inputs are _____
   A) 00 B) 01
   C) 10 D) 11

4) The addressing mode used in the instruction Add R1, (1001).
   A) Direct addressing B) Register addressing
   C) Immediate addressing D) Indirect addressing

5) Converting number (1100010101000111)2 to hexadecimal equivalent will give
   A) (18C86) 16 B) (18B86) 16
   C) (18A87) 16 D) (18A86) 16

6) After Reset the 80386 starts instruction fetch from the address _____
   A) FFFFF0 B) FFFFFFF
   C) FFFFFFF0 D) All of these

P.T.O.

7) The output of half adder is _____

A) Sum and borrow B) Sum and carry

C) Difference and carry D) None of these

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) Parallel Processing increase response time and throughput.
2) Clock speed and bandwidth not affect on performance of processor.
3) In Hardwired control unit it is easy to add new instructions.
4) All processing receive the same instruction from the control unit but operate in different data in MIMD.
5) In 80386 microprocessor having 24 bit address bus.
6) Multiplexer has many inputs and one outputs.

2. A) What is Demultiplexer ? 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) Explain DMA transfer modes. **7**

4. A) Differentiate RISC and CISC. **7**

B) What is Shift Register ? Explain Serial in Parallel Out. **7**

5. A) What are the different components of Microprocessor ? **7**

B) Explain 80286 microprocessor. **7**

6. Explain CPU building blocks accumulator based. **14**

7. Write a short note on : **14**

A) Parallel Database

B) Multiplexer

C) J-K flip flop.

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SLR-H – 7

Seat No.	

M.C.A. (Part – I) (Semester – I) (Old) Examination, 2015
(Commerce and Management Faculty)
C PROGRAMMING

Day and Date : Friday, 4-12-2015 Total Marks : 70
Time : 10.30 a.m. to 1.30 p.m.

***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** question carries **equal** marks.*

1. A) Choose Correct alternative : **10**

1) Which of the following is not a valid C variable name ?
   a) int number b) float rate
   c) int variable_count d) int $main

2) All keywords in C are in
   a) Lowercase letters b) Uppercase letters
   c) Camelcase letters d) None

3) _____ is not storage class in C.
   a) static b) auto c) register d) segment

4) The format identifier "%f" is also used for _____ data type.
   a) char b) int c) float d) double

5) Which data type is most suitable for storing a number 65000 in a 32-bit system ?
   a) short b) int c) long d) double

6) What is the size of an int data type ?
   a) 4 bytes b) 8 bytes
   c) depends on system/compiler d) cannot be determined

7) _____ operator is used to get address of variable.
   a) & b) * c) -> d) %

8) Which among the following function is odd one out ?
   a) printf b) puts c) putchar d) scanf

P.T.O.

9) _____ file mode is used to open the file for appending data to it.

a) r b) w c) a d) wr

10) What will be the value of var for the following ?

var = strcmp("Hello", "World");

a) –1 b) 0

c) 1 d) strcmp has void return-type

B) State whether statements are **true** or **false** : **4**

1) Array is derived data type.
2) Automatic conversion is known as explicit type conversion.
3) All members of union use same location.
4) Local variables are stored on heap.

2. A) Explain bitwise operators with example. **7**

B) Write a program that demonstrates use of nested if-else statement. **7**

3. A) What is string ? Explain different string handling functions. **7**

B) Write a program to calculate factorial of given number. **7**

4. A) What is function ? Explain different categories of functions. **7**

B) Write a function prime() that returns 1 if its argument is prime number. Otherwise return 0. **7**

5. A) What is pointer ? Explain the advantages of pointer. **7**

B) Write a program using pointer to read an array of integer and display it. **7**

6. What is structure ? Explain following concepts with programs. **14**

i) Array of structure
ii) Structure within structure
iii) Array within structure.

7. A) Write a program to count number of characters in file. **7**

B) Explain the role of C Pre-processor. **7**

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SLR-H – 8

Seat No.	

M.C.A. (Part – I) (Semester – I) (Commerce) Examination, 2015
DATABASE MANAGEMENT SYSTEM (Old)

Day and Date : Monday, 7-12-2015 Total Marks : 70
Time : 10.30 a.m. to 1.00 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. Choose the correct alternative : **14**

1) DML is provided for
   A) Description of logical structure of database
   B) Addition of new structures in the database system
   C) Manipulation and processing of database
   D) Definition of physical structure of database system

2) The database schema is written in
   A) HLL B) DML
   C) DDL D) DCL

3) An entity set that does not have sufficient attributes to form a primary key is a
   A) Strong entity set B) Weak entity set
   C) Simple entity set D) Primary entity set

4) In an E-R diagram an entity set is represent by a
   A) Rectangle B) Ellipse
   C) Diamond box D) Circle

5) A relational database developer refers to a record as
   A) a criteria B) a relation
   C) a tuple D) an attribute

P.T.O.

6) Data encryption techniques are particularly useful for _____
   A) Reducing storage space requirements
   B) Improving data integrity
   C) Protecting data in data communication systems
   D) All of the above

7) The statement in SQL which allows changing the definition of a table is
   A) Alter B) Update
   C) Create D) Select

8) E-R model uses this symbol to represent weak entity set
   A) Dotted rectangle B) Diamond
   C) Doubly outlined rectangle D) None of these

9) The file organization that provides very fast access to any arbitrary record of a file is
   A) Ordered file B) Unordered file
   C) Hashed file D) B-tree

10) Which of the following is a valid SQL type ?
   A) CHARACTER B) NUMERIC
   C) FLOATS D) All of the above

11) Which of the following is record based logical model ?
   A) Network Model B) Object Oriented Model
   C) E-R Model D) None of these

12) The natural join is equal to
   A) Cartesian product
   B) Combination of Union and Cartesian product
   C) Combination of selection and Cartesian product
   D) Combination of projection and Cartesian product

13) A primary key if combined with a foreign key creates
   A) Parent-Child relationship between the tables that connect them
   B) Many to many relationship between the tables that connect them
   C) Network model between the tables that connect them
   D) None of the above

14) Hierarchical model is also called

A) Tree structure B) Plex structure

C) Normalize structure D) Table structure

2. Attempt the following (**Any 2**) : **14**

1) What is data independence ? Explain the difference between physical and logical data independence.

2) What do you mean by integrity constraints ? Explain the two constraints, check and foreign key in SLQ with an example for each. Give the syntax.

3) Differentiate predefined exceptions and user defined exception in PL/SQL.

3. Attempt the following (**Any 2**) : **14**

1) Discuss the various types of data model.

2) Discuss Cursor in detail along with any example.

3) Explain function and procedure in detail along with any example.

4. Attempt the following : **14**

1) Explain the following functions of Oracle with suitable examples :

i) To_Char ( )

ii) Count ( )

iii) Trim ( )

iv) Length ( ).

2) Differentiate between

i) WHERE and HAVING clause in SQL.

ii) Strong entity set and weak entity set.

5. Attempt the following (**Any 2**) : **14**

1) Explain the File Organization in detail.

2) Explain the building blocks of PL/SQL.

3) What is Normalization ? Discuss the various normal forms.

6. Information about a bank is about customers and their account. Customer has a name, address which consists of house number, area and city and one or more phone numbers. Account has number, type and balance. We need to record customers who own an account. Account can be held individually or jointly. An account cannot exist without a customer.

   Draw an E-R diagram. Clearly indicate attributes, keys, the cardinality ratios and participation constraints. **14**

7. Consider the relations given below : **14**

   Borrower (id_no, name)

   Book (accno., title, author, borrower_idno)

   a) Define the above relations as tables in SQL making real world assumptions about the type of the fields. Define the primary keys and the foreign keys.

   b) For the above relations answer the following queries in SQL. What are the titles of the books borrowed by the borrower whose id-no in 365 ?

      i) Find the numbers and names of borrowers who have borrowed books on DBMS in ascending order in id_no.

      ii) List the names of borrowers who have borrowed at least two books.

SLR-H – 9

Seat No.	

M.C.A. – I (Comm.) (Semester – I) (Old) Examination, 2015
DISCRETE MATHEMATICS

Day and Date : Wednesday, 9-12-2015 Max. Marks : 70
Time : 10.30 a.m. to 1.30 p.m.

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

1. A) Fill in the blanks : **7**

1) Two unbiased coins are tossed. The probability of getting at most one tail is _____

2) If p and q are true and r is false, then truth value of $(p \wedge \sim q) \rightarrow r$ is _____

3) A function f from A to B is said to be _____ if f is both one-to-one and onto.

4) Maximum number of edges in a simple graph with n vertices is _____

5) 4 questions can be selected from 7 question in _____ ways.

6) The degree of an pendant vertex is _____

7) If ${}^{n}P_{2} = 30$, then n = _____

B) State **true** or **false** : **7**

1) In any group, identity is the only element whose order is one.

2) A path of a graph G is called a Eulerian path, if it includes each vertex of G exactly once.

3) If every element of a group (G, 0) be its own inverse, then it is an abelian group.

P.T.O.

4) A connected graph contains an Euler circuit, if and only if each of its vertices is of even degree.

5) A compound proposition that is always false for all possible truth values of its variables is called a tautology.

6) If A is an event, then $P(A) + P(A') = 1$.

7) A relation of a set is called an equivalence relation if it is reflexive, asymmetric and transitive.

2. Write short note on : **14**

A) Properties of algebraic systems

B) Properties of binary relation.

3. Attempt the following : **14**

A) Construct an argument to show that the following premises imply the conclusion "It rained". "If it does not rain or if there is no traffic dislocation, then the sports day will be held and the cultural programme will go on"; "If the sports day is held, the trophy will be awarded" and "the trophy was not awarded".

B) Three electric bulbs are chosen at random from 15 bulbs of which 5 are defective. Find the probability that

i) none is defective

ii) exactly one is defective

iii) at least one is defective.

4. Attempt the following : **14**

A) 5 balls are to be placed in 3 boxes. Each can hold all the 5 balls. In how many different ways can we place the balls so that no box is left empty, if

a) balls and boxes are different ?

b) balls are identical and boxes are different ?

c) balls are different and boxes are identical ?

d) balls as well as boxes are identical ?

B) Construct the truth table for; $\sim (p \vee (q \wedge r)) \leftrightarrow ((p \vee q) \wedge (p \rightarrow r))$.

5. If * is the operation defined on $S = Q \times Q$, the set of ordered pairs of rational numbers and given by $(a, b) * (x, y) = (ax, ay + b)$. **14**

   a) Find if (S, *) is a semigroup. Is it commutative ?

   b) Find the identity element of S

   c) Which elements, if any, have inverses and what are they ?

6. Find the code words generated by the encoding function e : B2 $\rightarrow$ B5 with respect to the parity check matrix. **14**

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

7. Write Warshall algorithm for computing the transitive closure of a relation and by using it find all the transitive closure of the relation R = {(1, 2), (2, 3), (3, 3)} on the set A = {1, 2, 3}. **14**

SLR-H – 10

Seat No.	

M.C.A. – I (Commerce) (Semester – I) Examination, 2015
PRINCIPLES OF MANAGEMENT (Old)

Day and Date : Friday, 11-12-2015 Total Marks : 70
Time : 10.30 a.m. to 1.30 p.m.

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

1. A) Match the pairs : **5**

Group A	Group B
1) Management	a) Deciding future course of action
2) Organising	b) Comparing standard with actual
3) Planning	c) Creation of structure
4) Controlling	d) Right person at a right job
5) Staffing	e) Getting things done

B) Answer in **1-2** sentences : **5**

1) Bottom of Pyramid
2) Decision making
3) Delegation of authority
4) Monetary motivation
5) Group behaviour.

C) State the following statements are **True** or **False** : **4**

1) Responsibility cannot be delegated.
2) Relay room experiments were conducted in 1927.
3) 'Centralised team' is one of the types of team.
4) Group emphasizes on the individual's accountability.

P.T.O.

2. Write short notes on (**any two**) : **(2×7=14)**
   a) Leadership styles
   b) Process of controlling
   c) Factors affecting on personality.

3. Write short notes on (**any two**) : **(2×7=14)**
   a) Process of staffing
   b) Contribution of Henry Fayol
   c) Meaning and process of MBO.

4. Write short notes on (**any two**) : **(2×7=14)**
   a) Scientific management of F. W. Taylor.
   b) Types of decision.
   c) Steps in planning process.

5. Define Organization behaviour. Explain in detail foundations of OB. **14**

6. What do you mean by organizing ? Explain various types of organisation. **14**

7. Define management. Explain in detail managerial skills with importance of management. **14**

SLR-H – 11

Seat No.	

M.C.A. – I (Semester – II) (Commerce) Examination, 2015
OBJECT ORIENTED PROGRAMMING USING C++

Day and Date : Thursday, 3-12-2015 Total Marks : 70
Time : 10.30 a.m. to 1.30 p.m.

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* ***6****.*
4) Figures to the ***right*** *indicate* ***full*** *marks.*

1. A) Choose the correct alternative : **7**

1) Constructor is executed when _____
   a) an object is created b) an object is used
   c) a class is declared d) an object goes out of scope

2) Default visibility mode of class is _____
   a) Public b) Protected
   c) Private d) Default

3) Which of the following can not be friend ?
   a) Function b) Class
   c) Object d) Operator function

4) In C++ which of the following operator is used for dynamic allocation of memory.
   a) Create b) Open c) Build d) New

5) A class that contains at least one pure virtual function is said to be _____
   a) Abstract class b) Pure class
   c) Virtual class d) Derived class

6) A reference is declared using the _____ symbol.
   a) * b) & c) ?: d) $

7) The size of an object of an empty class is _____
   a) 1 byte b) 2 bytes
   c) 4 bytes d) 0 byte

B) State **True** or **False** : **7**

1) It is legal to have object of one class as member of another class.
2) Class with virtual function can not be instantiated.
3) The operator new is used in C++ to allocate the memory dynamically.
4) Destructors can be called explicitly.
5) Pure virtual function can have body.
6) The eof() member function returns true when the file has been not created.
7) When a derived class is instantiated, only the derived class constructor is invoked.

2. A) What is inheritance ? What are types of inheritance ? **7**

   B) Write a C++ program illustrating constructor overloading. **7**

3. A) Write a CPP program to swap the file contents. **7**

   B) What is pure virtual function ? **7**

4. A) Write a C++ program to find maximum of two characters and two real numbers. Use templates. **7**

   B) What is friend function ? Explain with example. **7**

5. A) Write a C++ program to design a class string and overloaded operator + for concatenation of two strings. **7**

   B) What are the default arguments ? Explain it with simple example. **7**

6. A) What is in-line function ? Explain with example. **7**

   B) What is exception handling in C++ ? **7**

7. Explain the OOP's features in details with example. **14**

SLR-H – 12

Seat No.	

M.C.A. (Commerce) (Part – I) (Semester – II) Examination, 2015
OPERATING SYSTEM CONCEPTS

Day and Date : Saturday, 5-12-2015 Total Marks : 70
Time : 10.30 a.m. to 1.00 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) Fill in the blanks : **4**

1) _____ page replacement algorithm suffers from Belady's anomaly.

1) LRU 2) MRU
3) FIFO 4) LIFO

2) The main reason to encrypt a file is to _____

1) Reduce its size
2) Secure it for transmission
3) Prepare it for backup
4) Include it in the start-up sequence

3) Thrashing _____

1) Always occurs on large computers
2) Can always be avoided by swapping
3) Can be caused by poor paging algorithm
4) None of these

4) A process said to be in _____ state if it was waiting for an event that will never occur.

1) Safe 2) Unsafe
3) Starvation 4) Dead lock

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

1) What are the different types of interrupts ?
2) What are the different types of I/O communication techniques ?
3) What is deadlock ?
4) What do you mean by page fault ?
5) What is Thrashing ?

2. Attempt the following (**any 2**) : **14**

1) What is process ? Describe in detail structure and purpose of PCB.
2) Explain the need for synchronization.
3) Discuss the various protection mechanisms.

3. Attempt the following (**any 2**) : **14**

1) Explain with example various disk scheduling algorithms.
2) What is deadlock ? Explain the necessary condition for deadlock.
3) Explain segmentation memory management scheme in detail.

4. Attempt the following (**any 2**) : **14**

1) What is page fault ? Write down the steps for handling the page fault ?
2) Explain swapping in detail.
3) Difference between distributed and centralized operating systems.

5. Attempt the following : **14**

Explain following scheduling algorithms with the help of following examples along with their advantages and disadvantages (Arrival time = 0)

a) First Come First Served (FCFS)
b) Shortest Job First (SJF)
c) Priority Scheduling

d) Round Robin Scheduling (time quantum = 3)

Process	Burst time	Priority
P_1	5	4
P_2	12	1
P_3	16	3
P_4	18	5
P_5	2	2

6. Calculate the average cylinder movements for the all disk scheduling algorithms .
   Consider if disk head is initially at cylinder 60. **14**
   Consider a reference string 87, 170, 40, 150, 36, 72, 66, 15

7. Write a short note on (**any 2**) : **14**
   1) Demand Paging
   2) Compaction
   3) C-SCAN.

SLR-H – 13

Seat No.	

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

Day and Date : Tuesday, 8-12-2015 Max. Marks : 70
Time : 10.30 a.m. to 1.30 p.m.

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

1. A) Select correct alternative : **7**

1) _____ function in php is used to remove files from disc.
   a) remove() b) move()
   c) unlink() d) close()

2) The amount of space to the top and bottom of the image is indicated by _____
   a) hspace b) vspace
   c) space d) all of these

3) _____ controls the spacing between adjacent cells in the table.
   a) cellspacing b) cellpadding
   c) rowspan d) colspan

4) _____ event fires when the form element loses the focus.
   a) onfocus b) onblur
   c) onlick d) none of these

5) External dtd can be identified by keyword.
   a) ELEMENT b) SYSTEM
   c) SCOPE d) None of these

6) In Javascript _____ function is used to return all elements of the array joined into a string.
   a) joinarr() b) connect()
   c) join() d) None of these

7) The _____ method of an array object adds and/or removes elements from an array.
   a) shift b) splice c) slice d) none of these

B) State **true** or **false** : **7**

1) The attribute 'alt' is used in <img> tag to display alternate text if image cannot display.
2) An array in php which contains another array as element is called as associative array.
3) Javascript is an interpreted language.
4) Stylesheets are powerful mechanism for adding styles to web documents.
5) PHP is not compatible with IIS web server.
6) BACKGROUND-REPEAT : repeat – x will repeat the image specified vertically.
7) XML is case sensitive language.

2. A) What is CSS ? Explain inline CSS with suitable example. **7**

   B) Explain in detail internal and external linking in HTML with example. **7**

3. A) What is meant by array ? Explain the types of array in PHP with example. **7**

   B) Explain web server architecture in detail. **7**

4. A) Write a note on "Event handling" in Java script with example. **7**

   B) What is XML ? Write the difference between XML-DTD and XML-schema. **7**

5. A) Write a note on and tag with example. **7**

   B) Explain Date Object with its methods in Javascript. **7**

6. Consider a table Emp with fields emp_id, name, designation and salary.
   Write a php code for following things. **14**

   i) Crate database organization for creating Emp table
   ii) Create table Emp as given above
   iii) Insert data in Emp table
   iv) Display all records on browser in table format.

7. Illustrate Data validations in Javascript with example. **14**

SLR-H – 14

Seat No.	

M.C.A. – I (Semester – II) (Commerce) Examination, 2015
SOFTWARE ENGINEERING

Day and Date : Thursday, 10-12-2015 Total Marks : 70
Time : 10.30 a.m. to 1.30 p.m.

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

1. A) Choose the correct alternative from the given alternatives : **7**

1) The problem statement should include all of the following EXCEPT
   a) input b) Output
   c) processing d) Storage

2) Translating the problem statement into a series of sequential steps describing what the program must do is known as
   a) Creating the algorithm b) Debugging
   c) Coding d) Writing documentation

3) Which is the last step in classic life cycle paradigm ?
   a) System engineering b) Maintenance
   c) Design d) Analysis

4) Technical writers generally provide the _____ for the new system.
   a) Programs b) Network
   c) Analysis d) Documentation

5) _____ is concerned with fixing reported errors in the software.
   a) Corrective Maintenance b) Adaptive Maintenance
   c) Perfective Maintenance d) Post Maintenance

6) Systems are modified whenever
   a) User's requirements change
   b) New computers are introduced in the market
   c) Other similar organization modify these system
   d) New software tools become available in the market

7) _____ refers to the results and information that are generated by the system.
   a) Input b) Process
   c) Output d) All above

B) **True** or **False** : **7**

1) A code design is a document that sets rules for the design of a new development.
2) Adaptive maintenance means changing the software to new environment such as different hardware platform or for use with a different operating systems.
3) CASE is Computer Aided Software Engineering.
4) Legacy software is a group of software development methodologies based on iterative and incremental development.
5) Analysis and design tools enable a software engineer to create models of the system to be built.
6) A variety of fourth generation tools have programming features.
7) Initial requirements specification is only a rough indication of the requirement.

2. A) What is system requirement ? Explain the types. **7**

   B) Explain in detail Feasibility study ? **7**

3. A) State advantages and disadvantages of Prototyping Model. **7**

   B) Interviewing is most productive fact finding technique for System Analyst. Explain. **7**

4. A) State role of documentation in maintenance. **7**

   B) How software engineering assist in web application development ? **7**

5. A Cooperative bank XYZ will grant the loans under the following conditions : **14**

   1) If a customer has an account with the bank and has no loan outstanding, loan will be granted.

   2) If a customer has an account with the bank, but some amount is outstanding from previous loan then loan will be granted, if special management approval is obtained.

   3) Reject loan applications in all other cases.

   Draw a decision table and decision tree for above case.

6. Draw ERD and DFD for Inventory System. **14**

7. Write short notes on **any two** of the following : **14**

   1) Input Design

   2) Software Quality

   3) Coupling and cohesion.

SLR-H – 15

Seat No.	

M.C.A. (Commerce) (Part – I) (Semester – II) Examination, 2015
MANAGEMENT INFORMATION SYSTEM AND ENTERPRISE RESOURCE PLANNING

Day and Date : Saturday, 12-12-2015 Total Marks : 70
Time : 10.30 a.m. to 1.30 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) Strategic information is required by _____
   A) Middle managers B) Line managers
   C) Top managers D) All workers

2) A Dill Down capability is often include in
   A) MIS B) EIS C) DSS D) ES

3) ERP system limitation are
   A) Manager can not generate custom report or queries without help from programmer
   B) ERP system provides current status only such as open orders
   C) The data in the ERP application is not integrated
   D) All of these

4) _____ is a corporate level strategy focusing on manufacturing the product.
   A) HRM B) CRM
   C) SCM D) All of these

5) With a good ERP package the organization will have the capability of achieving dramatic improvements in critical area such as _____
   A) Cost B) Quality
   C) Speed D) All of these

P.T.O.

6) SAP best practices empower your company with

A) A proven methodology that leverage a prototype approach to implementation

B) Thoroughly document sceneries from both a business and technical perspective

C) Proven pre-configuration of SAP solution

D) All of these

7) What are the elements of an information system ?

A) People, procedure and data

B) Data, information and knowledge

C) Hardware, software and information processing

D) None of these

8) _____ is lengthy process, almost always takes two or more years to complete.

A) BPR B) CRM

C) ERP D) None of these

B) State **true** or **false** : **6**

1) The ERP system need not require regular maintenance in order to function properly.

2) DSS should not have the capability to interfere with corporate database.

3) The decision-making level of an organization that is most concerned with daily operations is the operational level.

4) MIS produce information product that support many of the day to day decision making needs of the management.

5) Training is never ending activity.

6) In an expert system, the process of matching a question to the information in the knowledge base is called inferencing.

2. A) What is MIS ? Explain different academic disciplines of MIS. **7**

   B) What is information ? Explain information needs of manager at different level. **7**

3. A) What do you mean by decision making ? Explain information needed for different phases in decision making. **7**

   B) What is ERP ? Explain the needs and advantages of ERP. **7**

4. A) What is expert system ? Explain structure of expert system. **7**

   B) Explain ERP implementation life cycle. **7**

5. A) Explain future directives in ERP. **7**

   B) What are needs of auditing for information system ? **7**

6. Explain different ERP modules. **14**

7. Write a short note on (**any 2**) : **14**

   A) Costs involved in ERP implementation

   B) ERP market

   C) Characteristics and capabilities of DSS.

SLR-H – 16

Seat No.	

M.C.A. (Commerce) (Semester – II) (Old) Examination, 2015
PROBABILITY AND COMBINATORICS

Day and Date : Monday, 14-12-2015 Total Marks : 70
Time : 10.30 a.m. to 1.30 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****. Solve* ***any one*** *question from Q. No.* ***5*** *and* ***6****.*
3) Figures to the ***right*** *indicates marks to a question or sub question.*

1. Choose the correct alternative : **14**

1) Probability can take values from
   a) $-\infty$ to $+\infty$ b) $-\infty$ to 1
   c) 0 to +1 d) –1 to +1

2) An integer is chosen from 1 to 20. The probability that the number is divisible by 4 is
   a) 1/4 b) 1/3
   c) 1/2 d) 1/10

3) Two events are said to be independent if
   a) each out come out has equal chance of occurrence
   b) there is the common point in between them
   c) one does not affect the occurrence of the other
   d) both events have only one point

4) Tickets numbered 1 to 20 are mixed up and then a ticket is drawn at random. What is the probability that the ticket drawn has a number which is a multiple of 3 or 5 ?
   a) 1/2 b) 2/5
   c) 8/15 d) 9/20

5) From a pack of 52 cards two are drawn with replacement. The probability, that the first is a diamond and the second is a king, is
   a) 1/26 b) 1/52
   c) 17/2704 d) none of these

P.T.O.

6) How many numbers of five digits can be formed from the numbers 2, 0, 4, 3, 8 when repetition of digits is not allowed ?
   a) 96 b) 144
   c) 120 d) 14

7) Two cards are drawn together from a pack of 52 cards. The probability that one is a spade and one is a heart, is
   a) 3/20 b) 29/34
   c) 47/100 d) 13/102

8) The mean for binomial distribution is
   a) np^2q b) pq
   c) np d) np/q

9) The mean and the variance are equal in
   a) All probability distributions
   b) The binomial distribution
   c) The Poisson distribution
   d) The hypergeometric distribution

10) Which of the following is not a requirement of a probability distribution ?
   a) Equally likely probability of a success
   b) Sum of the possible outcomes is 1.00
   c) The outcomes are mutually exclusive
   d) The probability of each outcome is between 0 and 1

11) Which of the following is a major difference between the binomial and the hypergeometric distributions ?
   a) The sum of the outcomes can be greater than 1 for the hypergeometric
   b) The probability of a success changes in the hypergeometric distribution
   c) The number of trials changes in the hypergeometric distribution
   d) The outcomes cannot be whole numbers in the hypergeometric distribution

12) In a continuous probability distribution
   a) Only certain outcomes are possible
   b) All the values within a certain range are possible
   c) The sum of the outcomes is greater than 1.00
   d) None of the above

13) The expected value of the random variable
   a) Will also be the most likely value of the random variable
   b) Is another term for the mean value
   c) Is also called the variance
   d) Cannot be greater than 1

14) The difference between a random variable and a probability distribution is
   a) A random variable does not include the probability of an event
   b) A random variable can only assume whose numbers
   c) A probability distribution can only assume whole numbers
   d) None of the above

2. Attempt the following : **14**

A) Two persons A and B appeared for an interview for a job. The probability of selection of A is $^1/_3$ and that of B is $^1/_2$. Find the probability that
   i) Both of them will be selected.
   ii) Only one of them will be selected.
   iii) None of them will be selected.

B) Explain the terms :
   i) Independent events.
   ii) Mutually exclusive events.
   iii) Conditional probability.

3. Attempt the following : **14**

A) A class contains 10 students with 6 men and 4 women, find the number of n ways.
   a) A 4-member committee can be selected from the students.
   b) A 4-member committee with 2 men and 2 women.
   c) The class can select a president, vice president.

B) Find the MGF of Binomial Distribution. Also find the mean and variance using MGF.

4. Attempt the following : **14**

A) Find the mean and variance for the following probability distribution :

X	8	12	16	20	24
P(X)	1/8	1/6	3/8	1/4	1/12

B) Three coins are tossed. What is the probability of getting ?

i) all heads

ii) two heads

iii) at least one head

iv) at least two heads.

5. State and prove Multinomial Theorem and find the coefficient of $x^3 y^4 z^2$ in the expansion of $(2x - 3y + 4z)^9$. **14**

6. A random variable X has the following probability distribution. **14**

X	– 2	– 1	0	1	2	3
P(X)	0.1	k	0.2	2k	0.3	3k

i) Find K

ii) Evaluate $P(X < 2)$ and $P(-2 < X < 2)$

iii) Find cdf of X and

iv) Evaluate the Mean X.

7. Find mean and variance of Exponential distribution. **14**

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SLR-H – 17

Seat No.	

M.C.A. – II (Semester – III) (Commerce) Examination, 2015
DATA STRUCTURE USING C++

Day and Date : Wednesday, 2-12-2015 Total Marks : 70
Time : 2.30 p.m. to 5.30 p.m.

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

1. A) Choose the correct alternative. **8**

1) A binary search tree whose left sub tree and right sub tree differ in height by at most 1 unit is called _____

a) Binary search tree b) Threaded tree
c) AVL tree d) B-tree

2) The prefix notation for the expression a/b^c+d

a) +/a^bcd b) /+a^bcd c) ab/c^d+ d) abc^/d+

3) The node with zero descendents are called as

a) root nodes b) internal nodes
c) leaf nodes d) all of the above

4) Function recursion is the application of _____ data structure.

a) Stack b) Queue c) Tree d) Graph

5) The in-order traversal of which of the following tree produces the elements in ascending order ?

a) AVL tree b) Threaded tree
c) B-tree d) Binary search tree

6) Array is _____ data type.

a) Built-in b) Derived
c) Enumerated d) User defined

7) For BFS traversal _____ data structure is used.
   a) Stack b) Queue
   c) Linked list d) None of these
8) Which of the following provides two-way traversal ?
   a) Doubly linked list b) Singly linked list
   c) Circular linked list d) None of the above

B) State **true** or **false** : **6**

1) In BST all leaf nodes must at same level.
2) Visiting all the nodes of tree is called as tree traversal.
3) When stack top becomes negative, it is called as overflow.
4) Priority queue can be ascending or descending.
5) To evaluation of expression stack data structure is used.
6) A linked list is collection of different data types.

2. A) Differentiate between array and linked list. **7**
   B) Write a program in C++ to count the number of elements in singly linked list. **7**

3. A) Write a C++ program to implement queue using linked list. **7**
   B) Convert the following infix notation into postfix notation using stack.
   (A-B-(C*D-F/G)*E) **7**

4. A) What is stack ? Explain the different applications of stack with example. **7**
   B) Write a program to reverse a string using stack. **7**

5. A) Write a C++ function to traverse a graph through BFS. **7**
   B) Construct the binary expression tree for the following preorder expression
   *-a b + cd. **7**

6. Write a program in C++ to perform the operations like creation, insertion, deletion and display the doubly linked list. **14**

7. Write a menu driven program in C++ to create binary tree and display tree elements by in-order, pre-order and post-order. **14**

SLR-H – 18

Seat No.	

M.C.A. (Part – II) (Semester – III) Examination, 2015
(Commerce and Management Faculty)
CORE JAVA PROGRAMMING

Day and Date : Friday, 4-12-2015 Total Marks : 70
Time : 2.30 p.m. to 5.30 p.m.

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) Which will legally declare, construct and initialize an array ?
   A) int [ ] myList = {“1”, “2”, “3”};
   B) int [ ] myList = (5, 8, 2);
   C) int myList [ ] [ ] = {4, 9, 7, 0};
   D) int myList [ ] = {4, 3, 7};

2) What is byte code in the context of Java ?
   A) The type of code generated by a Java compiler
   B) The type of code generated by a Java Virtual Machine
   C) It is another name for a Java source file
   D) It is another name for comments written within a program

3) The _____ method sets the string query parameter of the Prepared Statement Object.
   A) putString( ) B) insertString( )
   C) setString( ) D) setToString( )

4) Thread class is available in
   A) java.io package
   B) java.lang package
   C) java.awt package
   D) java.util package

P.T.O.

5) Which class cannot be extended in Java ?

A) abstract class B) parent class

C) final class D) none of above

6) _____ is a feature that allows one interface to be used for a general class of actions.

A) Class B) Inheritance C) Polymorphism D) Interface

7) Which of the following class is immutable ?

A) StringBuffer B) String

C) StringBuilder D) StringImmute

8) What is the name of the method used to start a thread execution ?

A) init B) start C) run D) resume

9) Class A extends B and Class B extends C, then such type of inheritance is called as

A) Multilevel B) Hierarchical

C) Multiple D) Multipath

10) _____ is default layout manager for frame.

A) FlowLayout B) GridLayout

C) BoxLayout D) BorderLayout

B) State whether statement is **true** or **false** : **4**

1) java.lang.Runnable is marker interface.

2) Throwable is superclass of Exception and Error classes.

3) Public members of class are accessible to outside classes.

4) Static import is used to import static members of class.

2. A) What is garbage collector ? How does it work ? Explain. **7**

B) Write a program that demonstrates method overriding in Java. **7**

3. A) Why String is called as immutable ? Explain with example. **7**

   B) Write a program that demonstrates use of throws keyword. **7**

4. A) What is thread ? Explain life-cycle of thread. **7**

   B) Write a program to create three threads that does following : **7**

      i) First thread prints “Asia” 10 times

      ii) Second thread prints “India” 10 times

      iii) Third thread prints “Maharashtra” 10 times.

5. A) Write a program to read one file and write characters at odd position to another file. **7**

   B) What is applet ? What are the life-cycle methods of applet ? Explain. **7**

6. A) What is Layout Manager ? Explain Flowlayout manager with example. **7**

   B) Write a JDBC program to retrieve all records from table in database. Use either Type-I or Type-IV driver. **7**

7. A) Write a JDBC program to retrieve all data from Microsoft Excel. **7**

   B) Why Swing components are called as lightweight ? Explain. Also differentiate AWT and Swing Components. Explain Event Delegation model in detail. **7**

SLR-H – 19

Seat No.	

M.C.A. (Part – II) (Semester – III) (Commerce) Examination, 2015
DATA COMMUNICATION AND NETWORKS

Day and Date : Monday, 7-12-2015 Max. Marks : 70
Time : 2.30 p.m. to 5.30 p.m.

***Note** : 1) Que. **1** and Que. **7** are **compulsory**.*
*2) Solve **any two** from Que. **2** to Que. **4**.*
*3) **Any one** from Que. **5** and Que. **6**.*

1. A) Choose the correct alternative from the following. **10**

i) The X.25 standard specifies a _____

a) technique for start-stop data b) technique for dial access

c) DTE/DCE interface d) data bit rate

ii) A _____ executes applications that monitor and control managed devices.

a) NMS b) NAT c) NOS d) None of these

iii) _____ is a protocol suite for securing InternetProtocol (IP) communications by authenticating and encrypting each IP packet of a communication session.

a) IPsec b) TCP/IP c) DHCP d) MIME

iv) _____ is an "Internet-standard protocol for managing devices on IP networks.

a) FTP b) IMAP c) MIME d) None of these

v) Name servers store information about the name space in units called "_____".

a) Zones b) Host

c) Authoritative host d) None of these

vi) _____ technology is designed to improve utilization and quality of service on high-traffic networks.

a) ATM b) X.25 c) 802.11X d) None of these

B) State **true-false** :

i) IPSec is a set of protocols and methodologies to create secure IP connections.

ii) SSL is a communications protocol layer which can be placed between TCP/IP and HTTP.

iii) Connectionless service method is often called a "reliable" network service.

iv) The physical addresses change from hop to hop, but the logical and port addresses usually remain the same.

C) Define the terms : **4**

i) Network

ii) Security

iii) Namespace

iv) Datagram.

2. A) Explain about SNMP. **7**

B) Write about the following : **7**

i) VSAT

ii) DNS.

3. A) Explain in detail about ISDN technology. **7**

B) Enumerate in detail about TCP/IP model. **7**

4. A) Write about subnet mask. **7**

B) Explain in detail about SSL. **7**

5. Write about the concept of IP addressing. Which are the different address classes ? **14**

6. What is routing ? Explain different routing algorithms. **14**

7. Write about sending and receiving emails. What is email addressing and message structure ? **14**

SLR-H – 20

Seat No.	

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

Day and Date : Wednesday, 9-12-2015 Max. Marks : 70
Time : 2.30 p.m. to 5.30 p.m.

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

1. Fill in the blanks : **14**

1) Effective software project management focuses on four P's which are
   a) People, performance, payoff, product
   b) People, product, performance, process
   c) People, product, process, project
   d) People, process, payoff, product

2) The first step in project planning is to
   a) Determine the budget
   b) Select a team organizational model
   c) Determine the project constraints
   d) Establish the objectives and scope

3) How does a software project manager need to act to minimize the risk of software failure ?
   a) Double the project team size
   b) Start on the right foot
   c) Track progress
   d) Both b) and c)

4) Software risk always involves two characteristics
   a) Fire fighting and crisis management
   b) Known and unknown risks
   c) Uncertainty and loss
   d) Staffing and budget

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) None of the above

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 of 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. Answer **any two** of the following : **(2×7)**
   1) Explain difference between the project process and product process.
   2) Explain defect management process.
   3) Explain role of user in project management process.

3. Attempt **any two** from following : **(2×7)**
   1) Briefly discuss the various testing stages.
   2) Explain project management life cycle.
   3) Explain version and release management with suitable example.

4. A) You are required to give cost estimation for the project of size 27,000 LOC. **(1×7)**
   B) What is software configuration management ? Explain its stages. **(1×7)**

5. Explain Basic, Intermediate and Complete COCOMO Models. **(1×14)**

6. Define change management. Explain in detail change management process. **(1×14)**

7. Explain the following : **(2×7)**
   a) Function point analysis.
   b) Gantt Chart.

_____

SLR-H – 21

Seat No.	

M.C.A. Commerce (Part – II) (Semester – III) Examination, 2015
ADVANCED DATABASE MANAGEMENT SYSTEM

Day and Date : Friday, 11-12-2015 Total Marks : 70
Time : 2.30 p.m. to 5.30 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) Multiple choice questions : **6**

1) SOAP stands for
   a) Simple Object Access Protocol
   b) Standard Object Action Process
   c) Standard Object Authorization Protocol
   d) Simple Object Access Process

2) GIS stands for
   a) Global Information System
   b) Geographical Information Systems
   c) Graphical Information System
   d) None of the above

3) Which of the following is NOT available in MySQL ?
   a) FETCH b) REVOKE
   c) LIKE d) JOIN

4) To create a structured type _____ is used.
   a) Create type b) Create table
   c) Create t d) Drop type

5) A _____ method is a method used to control changes to a variable.
   a) Observer b) Mutator
   c) Uploader d) Getter

6) In _____ architecture all the processors share the common memory.
   a) Shared nothing b) Shared disk
   c) Shared memory d) Hierarchical

B) **True/false** : **5**

1) MySQL supports the complete SQL99 standards.
2) In parallel databases data can be partitioned across multiple disks for parallel I/O.
3) The process of transforming a 1NF relation into a nested relation is called nesting.
4) Final keyword is used to indicate the start of a structured type.
5) Spatial databases provides the concept that keep track of objects in a multidimensional space.

C) Define the terms : **3**

a) OODBMS
b) Web architecture
c) DDBMS.

2. A) With neat diagram explain three tier architecture model. **7**

   B) What are the advantages of ORDBMS over OODBMS ? **7**

3. A) Explain the concept PARALLEL DBMS in detail with the architectures. **7**

   B) Explain the concept Expert system in detail with their architectures. **7**

4. A) Discuss in detail two phase locking techniques for concurrency control. **7**

   B) Explain components of GIS in detail. **7**

5. What are the different techniques for database recovery in DDBMS. **14**

6. Write the MySQL syntax for the following : **14**

   1) Create table of five fields with primary key.
   2) Insert the record in table.
   3) Update record in table.
   4) Delete a record from table.
   5) Delete the table.
   6) Create type ‘name’ with attributes {first name, middle name, last name}.
   7) Use of above structured type ‘name’ in a table, elaborate with an example.

7. Write short notes on **(any two)** : **14**

   a) Spatial Databases
   b) Complex data types
   c) Multimedia Databases.

SLR-H – 22

Seat No.	

M.C.A. (Part – II) (Semester – IV) Examination, 2015
(Commerce and Management Faculty)
JAVA PROGRAMMING (Old)

Day and Date : Thursday, 3-12-2015 Total Marks : 70
Time : 2.30 p.m. to 5.30 p.m.

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) In Java, there are _____ number of primitive data types.
A) 5 B) 8 C) 4 D) 2

2) _____method moves thread from running state into runnable state.
A) sleep( ) B) wait( )
C) yield( ) D) none of these

3) In Java, default priority of thread is_____
A) 5 B) 10 C) 7 D) 1

4) Java does not support_____inheritance.
A) Single B) Multilevel
C) Multiple D) Hierarchical

5) _____method is used to compare two objects in Java.
A) objectcompare( ) B) compareobject( )
C) clone( ) D) equals( )

6) Java source code compiled into_____

A) Executable code B) Object code

C) Machine code D) Bytecode

7) Which of the following class in java.net package is used to represent IP address of computer ?

A) IPAddress B) URLConnection

C) InetAddress D) Address

8) Which of the package contains all the classes and interfaces required for database connectivity.

A) java.io B) java.sql

C) java.net D) java.lang

9) _____ listener is an appropriate listener for Button Component.

A) MouseListener B) ItemListener

C) ActionListener D) EventListener

10) _____ is not lifecycle method of applet.

A) init( ) B) service( )

C) start( ) D) destroy( )

B) State whether statement is **true** or **false** : **4**

1) Abstract class can be instantiated.

2) Try block can be followed by either catch or finally block.

3) Java supports only pass by value parameter passing technique.

4) getConnection( ) is a method of Connection class in java.sql package.

2. A) What is abstract class ? How it differs from interface ? Explain with example. **7**

B) Explain all features of Java in detail. **7**

3. A) What is exception handling ? Explain try, catch and finally with example. **7**

   B) What is method overriding ? Write a program that demonstrate method overriding in Java. **7**

4. A) What is thread ? Explain thread lifecycle. **7**

   B) Write a program to input a string from user and write that string into file. **7**

5. A) What is JDBC ? Explain steps for database connectivity in Java. **7**

   B) Write a program to create an applet that displays message “Applets runs in browser”. **7**

6. What is Statement in JDBC ? What are the different types of statements in JDBC ? Write a program that demonstrate difference between Statement and PreparedStatement in JDBC. **14**

7. A) What is event ? How event gets handled in Java ? Explain with example. **7**

   B) What is RMI ? Explain architecture of RMI. **7**

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SLR-H – 23

Seat No.	

M.C.A. (Commerce) (Semester – IV) (Old) Examination, 2015
SOFTWARE TESTING AND QUALITY ASSURANCE

Day and Date : Saturday, 5-12-2015 Max. Marks : 70
Time : 2.30 p.m. to 5.30 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****.*
4) Figures to the ***right*** *indicates marks to a question or sub question.*

1. A) Multiple choice question : **6**

1) Verification is
   a) Checking that we are building the right system
   b) Checking that we are building the system right
   c) Performed by an independent test team
   d) Making sure that it is what the user really wants

2) Test are prioritized so that
   a) You shorten the time required for testing
   b) You do the best testing in the time available
   c) You do more effective testing
   d) You find more faults

3) If an expected result is not specified then
   a) We cannot run the test
   b) It may be difficult to repeat the test
   c) It may be difficult to determine if the test has passed or failed
   d) We cannot automate the user inputs

4) Which, in general, is the least required skill of a good tester ?
   a) Being diplomatic b) Able to write software
   c) Having good attention to detail d) Able to be relied on

5) The purpose of requirement phase is
   a) To freeze requirements b) To understand user needs
   c) To define the scope of testing d) All of the above

6) A regression test
   a) Will always be automated
   b) Will help ensure unchanged areas of the software have not been affected
   c) Will help ensure changed areas of the software have not been affected
   d) Can only be run during user acceptance testing

P.T.O.

B) State **True** or **False** : **5**

1) Cyclomatic Complexity method comes under White Box testing method.
2) Robustness is not a characteristic for Testability.
3) Software testing accounts to 40-50 percent of software development costs.
4) Defect management process does not include Deliverable base-lining.
5) Simple Loops can be successfully tested using Loop Testing methodology.

C) Write the answers in **one sentence** : **3**

1) Quality
2) Quality Assurance
3) Test case.

2. Attempt the following : **(7×2)**
   1) Draw and explain the various stages of Software Testing Life Cycle.
   2) What are the different activities performed by SQA group in organization.

3. Explain following terms with suitable example : **(7×2)**
   1) Software Quality Factors
   2) White Box Testing.

4. Attempt the following : **(7×2)**
   1) Design the test cases for all test paths for a code to get the first 10 even numbers.
   2) Explain in detail the necessary requirements and steps involved for testing an object oriented application.

5. Define the need of testing. Explain V & V life cycle in detail. **14**

6. What do you mean by testing strategies ? Explain each strategy in detail. **14**

7. Write short notes on **(any two)** : **14**
   1) Black Box testing
   2) Walk through
   3) System testing.

SLR-H – 24

Seat No.	

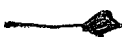
M.C.A. – II (Semester – IV) (Commerce) Examination, 2015
OBJECT ORIENTED ANALYSIS AND DESIGN (Old)

Day and Date : Tuesday, 8-12-2015 Max. Marks : 70
Time : 2.30 p.m. to 5.30 p.m.

Instructions *: 1) Que. No.* ***1*** *and Que. No.* ***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) Choose the correct alternative : **7**

1) An aggregation is represented by symbol _____

a)  b) 

c)  d) 

2) The term object was first formally utilized in _____ language.

a) Simula b) Java

c) C++ d) Small talk

3) _____ is the process of extracting the needs of a system and what the system must do to satisfy the user's requirements.

a) Analysis b) Design

c) Testing d) Patterns

4) The use case concept was introduced by _____ in the object oriented software engineering.

a) Ivar Jacobson b) Jim Rambaugh

c) Grady Bodh d) Ali Babrami

5) The _____ relationship is used when you have one use case that is similar to another use case but does a bit more.

a) Include b) Extend

c) Uses d) Association

P.T.O.

6) Swimlane is used in _____ diagram.

a) Activity b) Sequence

c) Collaboration d) Component

7) The focus of _____ phase in RUP is to develop the system to the point where it is ready for deployment.

a) Transition b) Elaboration

c) Construction d) Inception

B) Answer in **one** sentence : **7**

1) What is Actor ?

2) What is Interface ?

3) Define the term Fork.

4) Define the term Join.

5) Define the term Scenario.

6) What is meant by composition ?

7) Define the term stake holders.

2. a) Define analysis. Why analysis is difficult activity in software development ? **7**

b) Define object. Explain in detail object to object visibility with suitable example. **7**

3. a) Discuss in detail common class pattern approach with suitable example. **7**

b) Define pattern. Explain in detail advantages of pattern. **7**

4. a) Explain in detail notations involved in use case diagram with example. **7**

b) Explain in detail notations involved in implementation diagram with example. **7**

5. List the approaches for identifying classes and explain in detail noun phase approach with suitable example. **14**

6. ABC paper agency wants to develop software for paper distribution system . As a requirement engineer wants to store all the details about supplier, customer, sales person and distribution details. Owner purchase each item from separate suppliers. Owner generates purchase order to suppliers by considering the customers requirements. Owner receives material along with invoice from supplier. Then payment follows with receiving of receipts from supplier. Area wise collection and distribution is taken care by owner, by considering the customer requirements and availability of salesperson owner restricts only/area per salesperson. At the end of the day owner receives the distribution list along with scrap items. At the end of the month, on the basis of distribution, he generates customer bills and sends them accordingly and receives payments. Finally owner calculates commission of salesperson on the basis of distribution list.

   Note :

   At the end of the month owner sends scrap items to supplier.

   Draw the class diagram for paper distribution system considering the above conditions. **14**

7. Write short notes **(any 2)** : **14**

   a) "CRC" approach

   b) Object oriented design

   c) Impact of object orientation on testing.

SLR-H – 25

Seat No.	

M.C.A. Commerce (Part – II) (Semester – IV) (Old) Examination, 2015
OPTIMIZATION TECHNIQUES

Day and Date : Thursday, 10-12-2015 Total Marks : 70
Time : 2.30 p.m. to 5.30 p.m.

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. A) Select the correct alternative : **7**

1) If an activity has zero slack, it implies
   a) It lies on the critical path
   b) It is dummy activity
   c) The project is progressing well
   d) None of these

2) If an opportunity cost value is used for an unused cell to revise the solution for optimality, it should be
   a) Most positive number
   b) Equal to zero
   c) Most negative number
   d) Any value

3) Expected length of non-empty queue is given by
   a) $L = s\mu/(\mu-\lambda)$ b) $L = \lambda/(\mu-\lambda)$
   c) $L = \mu/(\mu-\lambda)$ d) $L = \lambda/(\mu+\lambda)$

P.T.O.

4) Constraints in LP model represents

a) Limitations

b) Requirements

c) Balancing limitations and requirements

d) All of these

5) The expected monitory value criteria is used for decision making under

a) Risk b) Uncertainty

c) Certainty d) None of these

6) While solving an IP problem any non-integer variable in the solution is picked up in order to

a) Obtain the cut constraint

b) Enter the solution

c) Leave the solution

d) None of these

7) The method used for solving assignment problem is _____

a) MODI b) Hungarian

c) North West Corner d) None of these

B) State **True** or **False** : **7**

1) A feasible solution to an LP problem must satisfy all of the constraints simultaneously.

2) If probability of outcome and state of nature is available then decision making environment is called risk.

3) The purpose of dummy row or column in an assignment problem is to prevent a solution from becoming degenerate.

4) The dual of dual LP is primal.

5) A customer who does not switch between waiting lines is called a patient customer.

6) Degeneracy in transportation problem occurs when dij > 0.

7) A course of action that may be chosen by a decision maker is called an alternative.

2. A company produces three types of products A, B and C. These products require three ores O_1, O_2 and O_3. The maximum quantities of the ores O_1, O_2 and O_3 available are 22 tones, 14 tones and 14 tones respectively. For one tone of each of these products the ore requirements are :

	A	**B**	**C**
O_1	3	-	3
O_2	1	2	3
O_3	3	2	3
Profit per tone (in Rs. '000)	1	4	5

The company makes a profit of Rs. 1,000, 4,000 and 5,000 on each tone of the products A, B and C respectively. How many tones of each product should the company produces in order to maximize profits. **14**

3. A) Write short notes on **(any two)** : **7**

1) Dual of LPP

2) Critical Path

3) Inventory cost.

B) A certain item costs Rs. 235 per tone. The monthly requirement is 5 tones and each time the stock is replenished there is a set-up cost of Rs. 1,000. The cost of carrying inventory has been estimated at 10 percent of the value of the stock per year. What is the optimal order quantity ? **7**

4. A) A company has four machines (W, X, Y, Z) that are to be used for three jobs (A, B, C). Each job can be assigned to one and only one machine. The cost of each job on each machine is given in the following table : **7**

	W	**X**	**Y**	**Z**
A	18	24	28	32
B	8	13	17	18
C	10	15	19	22

What are the job assignment pairs that shall minimize the cost ?

B) Define a queue. Explain the structure of queue and various queue disciplines. **7**

5. A) Solve the LP problem by using graphical method **7**

Max $Z = 5x_1 + 3x_2$

Subject to $3x_1 + 5x_2 \leq 15$

$5x_1 + 2x_2 \leq 10$

$x_1, x_2 \geq 0$

B) Draw the network diagram for following and find the critical path with its length. **7**

Activity	**Immediate Predecessors**	**Time**
A	-	14
B	A	22
C	B	10
D	B	16
E	B	12
F	C	10
G	C	6
H	F,G	8
I	D,E,H	24
J	I	16

6. A) Find the initial basic feasible solution for following transportation problem : **7**

From \ To	A	B	C	D	Requirements
P	32	42	26	45	45
Q	41	43	39	38	55
R	44	46	48	48	65
S	39	35	45	47	75
Available	75	65	55	45	

B) The following is the payoff table for three strategies and two states of nature. Select a strategy using each of the following decision criteria : **7**

a) maximax

b) minimax regret

c) maximin

Strategy	State of Nature	
	N1	N2
S1	40	60
S2	10	- 20
S3	- 40	150

7. The table below provides cost and time estimates of seven activities of a project. **14**

Activity	Time Estimates (weeks)		Direct cost estimates	
	Normal	Crash	Normal	Crash
1 - 2	2	1	10	15
1 - 3	8	5	15	21
2 - 4	4	3	20	24
3 - 4	1	1	7	7
3 - 5	2	1	8	15
4 - 6	5	3	10	16
5 - 6	6	2	12	36

a) Draw the project network corresponding to the normal time.

b) Determine the critical path.

c) Crash the activities so that the project completion time reduces to 9 weeks, with minimum additional cost.

SLR-H – 31

Seat No.	

M.C.A. (Part – II) (Semester – IV) Examination, 2015
(BM Elective) ENTERPRISE RESOURCE MANAGEMENT (Old)
(Commerce and Management Faculty)

Day and Date : Saturday, 12-12-2015 Total Marks : 70
Time : 2.30 p.m. to 5.30 p.m.

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.* ***7****.*
4) Figures to the ***right*** *indicate* ***full*** *marks.*

1. State **true** or **false** : **14**

A) OLAP is a subset of enterprise wide data warehouse.

B) Purchasing module streamlines procurement of required raw material.

C) Data warehousing is a collection of computer-based information that is critical to the successful execution of enterprise initiatives.

D) BPR is the fundamental rethinking and radical repairing.

E) People, Process and Technology are the three basic sides of ERP management.

F) Training is never ending activity.

G) Data mining can be defined in five words as – Fast Analysis of Shared Multi-dimensional Information.

H) CRM covers methods and technologies used by companies to manage their relationship with client.

I) OLTP provides facility to analyze the data held within the data warehouse in a flexible manner.

J) Repeat purchase does not depends on customers satisfaction.

K) ERP system cannot be implemented in a totally risk free environment.

L) SCM is network of facilities and distribution.

M) ERP connects various functions of the organization in an integrated fashion.

N) ERP system requires regular maintenance in order to function properly.

P.T.O.

2. A) Define ERP and explain tangible and intangible benefits of ERP. **7**

   B) Explain different costs incurred in ERP implementation. **7**

3. A) List out different ERP related technologies and explain any one in detail. **7**

   B) Explain a different personnel's involved in ERP implementation with their role in ERP implementation. **7**

4. A) Explain different criteria's to select ERP system. **7**

   B) Explain why support of top level management is essential for the success of ERP ? **7**

5. Write and explain ERP implementation life cycle. **14**

6. List and explain different ERP implementation strategies. **14**

7. Solve **any two** from the following : **14**

   A) List out different essential modules of ERP. Explain any one in detail.

   B) Explain different phases of BPR.

   C) Success and failure factors of ERP implementation.

SLR-H – 32

Seat No.	

M.C.A. (Part – II) (Semester – IV) (New) Examination, 2015
(Commerce and Management Faculty)
ADVANCED JAVA PROGRAMMING

Day and Date : Thursday, 3-12-2015 Total Marks : 70
Time : 2.30 p.m. to 5.30 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**.*
*4) Figures to the **right** indicate **full** marks.*

1. Fill in the blanks : **14**

1) In OSI N/w architecture, the dialogue control and token management are responsibilities of _____
   a) Network b) Session
   c) Application d) DataLink
2) In OSI N/W Architecture, the routing is performed by _____
   a) Network b) Session
   c) Application d) DataLink
3) IPv4 uses a address of _____ and IPv6 uses a _____ address.
   a) 32-bit and 128-bit
   b) 28-bit and 56-bit
   c) 16-bit and 32-bit
   d) None
4) In 1993, Marc Andreeseen and some students at the University of Illinois developed the world's first graphical web browser called _____
   a) Internet Explorer
   b) Chrome
   c) Mosaic
   d) Mozilla

5) HTTP is a _____ protocol.
   a) Stateless b) State full
   c) Session d) None

6) _____ encryption follows two basic principles, namely substitution and transposition.
   a) Asymmetric key
   b) Symmetric key
   c) Both a) and b)
   d) None

7) What is the limit of data to be passed from HTML when doGet( ) method is used ?
   a) 4k b) 8k
   c) 2k d) 1k

8) Which method is used to specify before any lines that uses the PrintWriter ?
   a) setPageType()
   b) setContextType()
   c) setContentType()
   d) setResponseType()

9) Which of the following are the session tracking techniques ?
   a) URL rewriting, using session object, using response object, using hidden fields
   b) URL rewriting, using session object, using cookies, using hidden fields
   c) URL rewriting, using servlet object, using response object, using cookies
   d) URL rewriting, using request object, using response object, using session object

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 deployment descriptor describes
    a) Web component response settings
    b) Web component settings
    c) Web component request objects
    d) All of the above

12) The major difference between servlet and CGI is
    a) Servlets are thread based and CGI is process based
    b) Servlets executes slower compared to CGI
    c) Servlet has no platform specific API, where as CGI has
    d) All of the above

13) The values of <servlet-name> and <servlet-class> in web.xml file
    a) Must be same
    b) Must not be same
    c) May be same
    d) None of the above

14) A servlet maintain session in
    a) Servlet container
    b) Servlet context
    c) Servlet request heap
    d) Servlet response heap

2. a) List and describe implicit objects in JSP. **(2×7=14)**
   b) Explain Error handling in JSP.

3. Write short note on : **(2×7=14)**
   a) Tomcat server
   b) JSP and JDBC

4. a) Explain Action Form and Action Servlet. **(2×7=14)**
   b) Explain EJB and its type.

5. Write short note on : **14**

   a) HTTP Response

   b) HTTP Request

   c) Connectionless and Connection Oriented

   d) Stateless and Statefull.

6. Write a short notes : **14**

   a) Servlet API

   b) Apache

   c) Tomcat

   d) Thread safe servlet.

7. Explain Servlet session management and write a program to implement session using cookies. **14**

SLR-H – 33

Seat No.	

M.C.A. (Part – II) (Semester – IV) (Commerce) Examination, 2015
ADVANCED DEVELOPMENT TECHNOLOGY (New)

Day and Date : Saturday, 5-12-2015 Total Marks : 70
Time : 2.30 p.m. to 5.30 p.m.

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 is an 8-byte integer ?
A) Char B) Long C) Short D) Byte

2) Which of the following are not value types ?
A) Int B) Decimal C) Object D) Struct

3) In which of the following areas are delegates commonly used ?
A) Multithreading B) Property
C) Event handling D) Field

4) Which of the following .NET components can be used to remove unused references from the managed heap ?
A) CLR B) CTS
C) Garbage Collector D) Assembly

5) Which of the following languages can be used to write server side scripting in ASP.NET ?
A) C# B) C C) C++ D) VC

6) When a .aspx page is requested from the web server, the out put will be rendered to browser in following format.
A) HTML B) XML C) WML D) SOAP

7) What executable unit gets created when we build an ASP.Net application ?
A) .DLL B) .EXE C) .COM D) .CS

8) The first event to be triggered in an aspx page is

A) Page_Load() B) Page_Init()

C) Page_Click() D) Unload()

9) How do you manage states in asp.net application ?

A) Session Objects B) Application Objects

C) Cookies D) All of above

10) Which method do you invoke on the Data Adapter control to load your generated dataset ?

A) Fill() B) ExecuteQuery()

C) Read() D) Update

B) State **True** or **False** : **4**

1) A property can be declared inside a class, struct, Interface.

2) Indexers are similar to properties except that their accessors take parameters.

3) A string is created on the heap.

4) All operators in C#.NET can be overloaded.

2. A) What is difference between ASP and ASP.Net ? **7**

B) What is difference between C# and Java ? **7**

3. A) Explain the component of .Net Framework. **7**

B) What is Indexer ? Explain with example. **7**

4. A) What is exception Handling ? Explain with example. **7**

B) What is State Management in ASP.Net ? Explain the different technique for state management. **7**

5. What is ADO.Net ? Explain the disconnected Architecture in detail along with database connectivity. **14**

6. A) Write a program for overloading unary minus operator. **7**

B) What is overriding a method ? How is it achieved in C# ? **7**

7. Write a short note on (**any 2**) : **14**

1) Boxing and Unboxing 2) ASP.Net Page Event

3) Delegate 4) Web Service

SLR-H – 34

Seat No.	

M.C.A. – II (Commerce) (Semester – IV) Examination, 2015
DATA WAREHOUSING AND DATA MINING (New)

Day and Date : Tuesday, 8-12-2015 Total Marks : 70
Time : 2.30 p.m. to 5.30 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 : **7**

1) Fact tables are which of the following ?
   A) Completely demoralized B) Partially demoralized
   C) Completely normalized D) Partially normalized

2) _____ technologies are the right solutions for knowledge discovery on the web.
   A) Data Mining B) Knowledge Mining
   C) Text Mining D) Web Mining

3) Cluttering is also known as ....?
   A) Supervised Learning B) Unsupervised Learning
   C) Semi-supervised Learning D) None of these

4) A Business Intelligence system requires data from
   A) Data warehouse B) Operational systems
   C) Web servers D) Database servers

5) Web structure mining is the process of discovering _____ information from the web.
   A) Semi-structured B) Structured
   C) Unstructured D) None of these

6) _____ is the process of finding a model that describes and distinguishes data classes or concepts.
   A) Data characterization B) Data classification
   C) Data clustering D) Regression

7) A snowflake schema is which of the following types of tables ?
   A) Fact B) Dimension table
   C) Helper D) All of these

P.T.O.

B) State **true** or **false** : **7**

1) The role of the ETL process is to identify erroneous data and to fix them.
2) Successful data warehousing requires that a formal program in total quality management (TQM) be implemented.
3) A star schema may be completely normalized.
4) Virtual cube is used to query two similar cubes by creating a third “virtual” cube by a join between two cubes.
5) A data mart is designed to optimize the performance for well-defined and predicable uses.
6) Periodic data are physically altered once added to the store.
7) Every key used to join the fact table with a dimensional table should be a surrogate key.

2. A) What is Data Warehouse ? Explain the need of data warehouse for industry. **7**

   B) What is Data mart ? Explain the need of data mart and differentiate data mart and data warehouse. **7**

3. A) Differentiate OLTP and OLAP. **7**

   B) What is fact and dimension table and how it design ? **7**

4. A) Explain partitioning strategy in data warehouse. **7**

   B) Define Data Mining. Explain Data Mining Issues. **7**

5. A) Explain with example decision tree algorithm. **7**

   B) What is web mining ? Explain the applications of Web mining. **7**

6. A) Explain Bayesians classification algorithm with example. **7**

   B) Explain Hierarchical method in cluster analysis. **7**

7. Write short notes on (**any two**) : **14**

   A) Data Cube

   B) Page Rank

   C) Difference between normal query language and data mining.

SLR-H – 35

Seat No.	

M.C.A. (Part – II) (Commerce) (Semester – IV) (New) Examination, 2015
DESIGN AND ANALYSIS OF ALGORITHM

Day and Date : Thursday, 10-12-2015 Total Marks : 70
Time : 2.30 p.m. to 5.00 p.m.

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

1. State **true** or **false** : **14**

a) Greedy Algorithm design technique works in steps.

b) Testing of a program consist of two phases : debugging and profiling.

c) Algorithm analysis is the process of finding different resources required for the algorithm.

d) The source, destination and the path were generally represented with the help of Tree.

e) Dijkstra's algorithm is used to determine the length of the shortest path from vertex V_0 to all other vertices in graph G.

f) Eight Queens problem is example of backtracking algorithm design technique.

g) Time complexity of an algorithm is nothing but space required by algorithm to run to completion.

h) Theta specifically describes the Average-case scenario or asymptotic tight bounds required for time and space used by an algorithm.

i) The condition for binary search is that, all the elements should be in descending order.

P.T.O.

j) Radix sort is dependent on Radix, Number of digits in largest element and Size of array.

k) Problem testing is the techniques and tools used to express the methods and ways to express logic used to solve the given problem.

l) Big O specifically describes the worst-case scenario, and can be used to describe the maximum execution time required or the space used by an algorithm.

m) Omega specifically describes the asymptotic lower bounds of Space and Time complexity.

n) Frequency is the value indicating total number of times statement executes.

2. A) Write a note on time complexity. Write algorithm and calculate time complexity for the problem to perform matrix addition ? **7**

   B) Describe the terms heap, max heap and min heap ? Explain insert operations on heap with suitable example. **7**

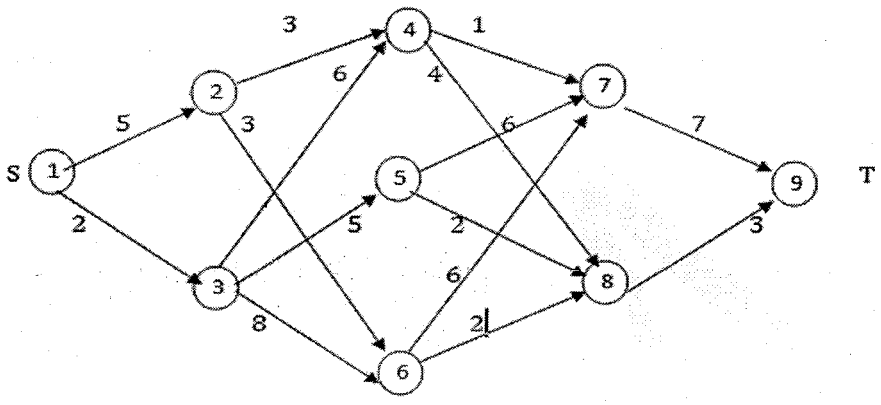
3. A) Explain algorithm characteristics and algorithm specifications. **7**

   B) Differentiate between divide and conquer algorithm and greedy algorithm of problem solving ? **7**

4. A) Explain how knapsack problem is an example of greedy method ? Find out an optimal solution for the knapsack problem. No. of items = 8, Capacity = 110, Profit = (11, 21, 31, 33, 43, 53, 55, 65) Weight = (1, 11, 21, 23, 33, 43, 45, 55). **7**

   B) Write note on radix sort and sort the array {123, 99, 307, 504, 101, 209, 255} using radix 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**



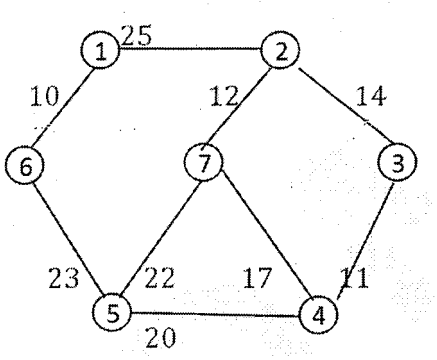
6. Write algorithm for binary search using divide and conquer method ? Search element 49 in the given array {10, 18, 19, 20, 25, 30, 49, 57, 64, 71}. **14**

7. Solve **any two** questions from following :

   A) List out different asymptotic notation with their key characteristics and explain Theta notation in detail. **7**

   B) Write short note on 8 Queens Problem : An example of backtracking. **7**

   C) What is minimum spanning tree ? Write Prim's algorithm and calculate minimum spanning tree for the following graph. **7**



SLR-H – 36

Seat No.	

M.C.A. – II (Commerce) (Semester – IV) (New) Examination, 2015
OPTIMIZATION TECHNIQUES

Day and Date : Saturday, 12-12-2015 Max. Marks : 70
Time : 2.30 p.m. to 5.00 p.m.

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 answer : **7**

1) The while solving a LP model graphically, the area bounded by the constraints is called
   a) feasible region b) infeasible region
   c) unbounded solution d) none of the above

2) A dummy activity is used in the network diagram when
   a) two parallel activities have the same tail and head events
   b) the chain of activities may have a common events yet be independent by themselves
   c) both a) and b)
   d) neither of the above

3) Linear programming is a
   a) constrained optimization technique
   b) technique for economic allocation of limited resources
   c) mathematical technique
   d) all of the above

4) Which of the following is characteristics apply to queuing system ?
   a) customer population b) arrival process
   c) both a) and b) d) neither a) nor b)

5) If there were n workers and n jobs there would be
   a) n! solutions b) (n – 1)! solutions
   c) $(n!)^n$ solutions d) n solutions

P.T.O.

6) A saddle point exists when
   a) Maximin value = miximax value b) Minimax value = minimum value
   c) Minimax value = maximin value d) none of the above

7) The occurrence of degeneracy while solving a transportation problem means that
   a) total supply equals total demand
   b) the solution so obtained is not feasible
   c) the few allocations become negative
   d) none of the above

B) State whether **true** or **false** : **7**

1) The objective of network analysis is to minimize the total project cost.

2) Customer population is one of the characteristic of any queuing system.

3) LP determines the economic and efficient way of locating manufacturing plants for physical distribution.

4) All dummy rows or columns in the assignment problem are assumed to be non-zero.

5) In a pure strategy game, each player always plays just one strategy.

6) In the North-West Corner Method, the cost of transportation on any route of transportation is taken into account.

7) PERT is referred to as an activity oriented technique.

2. Write short note on : **14**

1) Characteristics of Queuing Model.

2) Least Cost Method.

3. Attempt the following : **14**

1) Anita Electric Company produces two products P and Q. Products are produced and sold on a weekly basis. The weekly production cannot exceed 25 for product P and 35 for product Q because of limited available facilities. The company employs total of 60 workers. Product P requires 2 man weeks of labour, while Q requires one man week of labour. Profit margin on P is Rs. 60 and on Q is Rs. 40. Formulate this problem as LPP.

2) Find Initial Basic feasible solution by using North-West Corner Rule Method :

	A	**B**	**C**	**Supply**
W	4	8	8	76
X	16	24	16	82
Y	8	16	24	77
Demand	72	102	41	

4. Attempt the following : **14**

1) Find the assignment of salesman to districts that will result in maximum sales :

Salesmen	Districts				
	A	B	C	D	E
1	32	38	40	28	40
2	40	24	28	21	36
3	41	27	33	30	37
4	22	38	41	36	36
5	29	33	40	35	39

2) For the game with payoff matrix :

Player A	Player B		
	B_1	B_2	B_3
A_1	– 1	2	– 2
A_2	6	4	– 6

Determine the optimal strategies for players A and B. Also determine the value of game. Is this game fair ?

5. Determine the optimal distribution for following transportation problem to minimize its total shipping cost. (Find IBFS by using VAM). **14**

Distribution centre	Retail outlet				Availability
	A	B	C	D	
Agra	8	9	6	3	18
Allahabad	6	11	5	10	20
Calcutta	3	8	7	9	18
Requirement	15	16	12	13	

6. Solve following LPP by using Simplex method : **14**

   Maximize $Z = 4x + 3y$

   Subject to the constraints,

   $2x + y \leq 1000$, $x + y \leq 800$, $x \leq 400$, $y \leq 700$ and $x, y \geq 0$.

7. The following table gives data on normal time and cost and crash time and cost for a project : **14**

Activity	Normal		Crash	
	Time (weeks)	Cost (Rs.)	Time (weeks)	Cost (Rs.)
1 – 2	3	300	2	400
2 – 3	3	30	3	30
2 – 4	7	420	5	580
2 – 5	9	720	7	810
3 – 5	5	250	4	300
4 – 5	0	0	0	0
5 – 6	6	320	4	410
6 – 7	4	400	3	470
6 – 8	13	780	10	900
7 – 8	10	1000	9	1200

Indirect cost is Rs. 50 per week :

a) Draw the network diagram for the project and identify critical path.

b) What are the normal project duration and associated cost ?

c) Crash the relevant activities systematically and determine the optimal project completion time and cost.

———————

SLR-H – 37

Seat No.	

M.C.A. (Semester – V) (Commerce) Examination, 2015
HUMAN COMPUTER INTERFACE (Old)

Day and Date : Wednesday, 2-12-2015 Max. Marks : 70
Time : 10.30 a.m. to 1.30 p.m.

Note : *1) Que. **1** and Que. **7** are **compulsory**.*
*2) Solve **any two** from Que. **2** to Que. **4**.*
*3) **Any one** from Que. **5** and Que. **6**.*

1. A) Answer in **1-2** sentence : **(5×2)**
   1) List methods to convey information.
   2) Why include users in the design team ?
   3) What is End User Wants ?
   4) What are the different Interaction Styles ?
   5) Who is involved in User Interfaces ?

   B) Define the following : **(4×1)**
   1) Goals
   2) Operators
   3) Method
   4) Learnability.

2. A) What are eight golden Rules of Interface Design ? Explain implementation of any one. **7**

   B) Explain three pillars of User Interface Design. **7**

3. A) Explain guidelines for the design of effective error messages. **7**

   B) What are the benefits and problems of voice recognition input ? **7**

P.T.O.

4. A) Explain with example computer supported co-operative work. **7**

   B) Explain STM – Short Term Memory and LTM – Long Term Memory. **7**

5. Explain object action interface model for website design. **14**

6. A) Explain stages of user centered interactive design methodology. **7**

   B) What do you mean by virtual environment ? **7**

7. A) Describe the five measurable human factors. **7**

   B) Explain steps in Usability and Acceptance test of user interface design. **7**

SLR-H – 38

Seat No.	

M.C.A. (Part – III) (Semester – V) (Commerce) Examination, 2015
SOFTWARE IT PROJECT MANAGEMENT (Old)

Day and Date : Friday, 4-12-2015 Total Marks : 70
Time : 10.30 a.m. to 1.30 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. Fill in the blanks : **14**

1) Software risk always involves two characteristics
   A) Fire fighting and crisis management
   B) Known and unknown risks
   C) Uncertainty and loss
   D) Staffing and budget

2) A risk item checklist would contain known and predictable risks from which of these categories ?
   A) Product size B) Development environment
   C) Staff size D) None of the above

3) A key concept of quality control is that all work products
   A) Are delivered on time and under budget
   B) Have complete documentation
   C) Have measurable specifications for process outputs
   D) Are thoroughly tested before delivery to the customer

4) The ISO quality assurance standard that applies to software engineering is
   A) ISO 9000 : 2004 B) ISO 9001 : 2000
   C) ISO 9002 : 2001 D) ISO 9003 : 2004

P.T.O.

5) Which of the following is not a section in the standard for SQA plans recommended by IEEE ?

A) Budget B) Documentation

C) Reviews and audits D) Test

6) A data repository meta model is used to determine how

A) Information is stored in the repository

B) Data integrity can be maintained

C) The existing model can be extended

D) All of the above

7) Which of the following tasks is not part of software configuration management ?

A) Change control B) Reporting

C) Statistical quality control D) Version control

8) For every software organization, the key element is _____

A) People B) Project C) Process D) Product

9) SEI stands for _____

A) System Engineering Institute B) Software Engineering Institute

C) Software Engineers Institute D) System Engineers Institute

10) _____ is responsible for total project management.

A) Project Manager B) Project Developer

C) Programmer D) System Manager

11) _____ is an umbrella activity that is applied throughout the software process.

A) Software Quality Assurance B) Software Quality Management

C) Software Quality Testing D) Software Quality Engineering

12) _____ is a method used to identify defects in an artifact before progressing to the next stage of development.

A) Testing B) Debugging

C) Process D) Formal Technical Review

13) Many projects use the _____ method for estimation.

A) Top-down B) Incremental

C) Bottom-up D) Spiral

14) The productivity of a project is measured in terms of _____ per person-month.

A) Testing B) Debugging

C) Codes produced D) Function points

2. Attempt the following : **14**

1) What is software configuration management ? Explain its stages.

2) Illustrate Defect Management Concept and Three defects strategies.

3. Attempt the following (**any 2**) : **14**

1) What is Risk Management and its stages ?

2) What is Software Project Management ? Explain various stages of project management life cycle.

3) Difference between verification and validation.

4. Attempt the following (**any 2**) : **14**

1) Explain software cost estimation methods.

2) Discuss major factors that influence in software cost.

3) What is Software Quality Assurance and explain Software Quality Assurance activities in detail ?

5. Explain the team structure in software project management. Explain its types. **14**

6. Explain the documentation standards in details. **14**

7. Write a short note on (**any 2**) : **14**

1) Types of reviews

2) Version control

3) PERT and CPM.

_____

SLR-H – 39

Seat No.	

M.C.A. (Part – III) (Semester – V) Examination, 2015
(Commerce and Management Faculty)
EMERGING TRENDS IN IT (Old)

Day and Date : Monday, 7-12-2015 Max. Marks : 70
Time : 10.30 a.m. to 1.30 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** and Q. **6**.*
*4) **All** questions carry **equal** marks.*

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

A) Fill in the blanks : **7**

1) In the e-Governance G2B stands for _____
2) Center of gravity is the methods of _____
3) _____ can be defined as the automatic or semi-automatic processing of human language.
4) In the embedded system, RTOS stands for _____
5) Spam filtering is an example of _____
6) RFID stands for _____
7) These systems work by capturing data for nodal points on a digital image of an individual's is called _____

B) State **True** or **False** : **7**

1) Computer System and Embedded System both are same.
2) DNA stands for Debonucleic acid.
3) Expert Systems manipulate knowledge while conventional programs manipulate data.
4) Blogging is a used in E-learning.
5) Neural networks are complex discrete functions with many parameters.
6) The latitude, longitude and altitude displayed by a GPS receiver represent an estimate of the receiver's antenna position.
7) Digital Signature is a software to recognize signature.

P.T.O.

2. Attempt the following : **14**
   1) What are the applications of E-banking.
   2) What is embedded system ? Explain applications of embedded system.

3. Attempt the following : **14**
   1) What is Fuzzy Logic ? Explain in detail.
   2) Explain Machine learning in details.

4. Attempt the following : **14**
   1) What is Natural Language Processing ? Explain in detail.
   2) What is Knowledge Management System ? Explain its architecture in detail.

5. Attempt the following : **14**
   1) What is GIS ? Explain the data types of GIS in detail.
   2) Explain fingerprint scanning in detail.

6. Attempt the following : **14**
   1) Explain Facial Reorganization in detail.
   2) Explain hand geometry in detail.

7. What is artificial neural network ? Differentiate between biological neuron and artificial neuron. **14**

SLR-H – 40

Seat No.	

M.C.A. (Part – III) (Semester – V) (Old) Examination, 2015
(Commerce and Management Faculty)
ADVANCED INTERNET TECHNOLOGY

Day and Date : Wednesday, 9-12-2015 Total Marks : 70
Time : 10.30 a.m. to 1.30 p.m.

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. Fill in the blanks with appropriate option : **14**

   1) Conventional credit cards and bank cards can be regarded as the first generation _____
      a) chips b) IC c) smart cards d) none

   2) The authentication system of _____ is based on the X.509 digital certificate framework.
      a) digital signature
      b) digital certificate
      c) SET
      d) none

   3) Authentication is performed through a key infrastructure.
      a) private b) public c) both d) none

   4) The SET protocol has _____ phases.
      a) 3 phases b) 2 phases c) 4 phases d) none

   5) _____ is the network protocol used to deliver virtually all files and other data on the World Wide Web.
      a) FTP b) HTP c) HTTP d) Telnet

   6) A _____ is part of the server's official name on the network, an alias for the less descriptive IP numbers.
      a) web b) domain c) class d) none

P.T.O.

7) 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
8) A deployment descriptor describes
   a) web component response settings
   b) web component settings
   c) web component request objects
   d) all of the above
9) The values of <servlet-name> and <servlet-class> in web.xml file
   a) must be same
   b) must not be same
   c) may be same
   d) none of the above
10) The method forward (request, response) will
   a) return back to the same method from where the forward was invoked
   b) not return back to the same method from where the forward was invoked and the web pages navigation continues
   c) both a) and b) are correct
   d) none of the above
11) A servlet maintain session in
   a) Servlet container
   b) Servlet context
   c) Servlet request heap
   d) Servlet response heap
12) Servlet mapping defines
   a) an association between a URL pattern and a servlet
   b) an association between a URL pattern and a request page
   c) an association between a URL pattern and a response page
   d) all of the above

13) The life cycle of a servlet is managed by
   a) servlet context
   b) servlet container
   c) the supporting protocol (such as http or https)
   d) all of the above

14) The init parameter name and value pairs that are defined in web.xml file are handled by
   a) ServletConfig object
   b) ServletContext object
   c) ServletRequest object
   d) ServletResponse object

2. A) List and describe implicit objects in JSP. **7**
   B) Explain web.xml file and its use for parameter passing. **7**

3. A) Explain E-commerce and Application. **7**
   B) Write a note on database connectivity with mysql in PHP. **7**

4. A) Explain Servlet life cycle. **7**
   B) Differentiate between CGI and Servlet. **7**

5. Explain session tracking mechanisms. Explain session tracking in servlet with example. Also explain how to invalidate the session. **14**

6. A) Write a program to demonstrate the use ServletConfig in servlet. **7**
   B) What is array ? Explain the different types of arrays in PHP with example. **7**

7. Explain JSP Action and JSP directives with example. **14**

SLR-H – 41

Seat No.	

M.C.A. (Part – III) (Semester – V) Examination, 2015
(Commerce and Management Faculty) (IT Elective – 1)
CYBER LAW AND IT SECURITY (Old)

Day and Date : Friday, 11-12-2015 Total Marks : 70
Time : 10.30 a.m. to 1.30 p.m.

***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) Figures to the **right** indicate **full** marks.*

1. A) Select the correct alternative : **8**

1) A piece of information that allows a Web site to record one's comings and goings is called
   a) browser b) cookie
   c) worm d) macro virus

2) A government's attempt to control the material broadcasted on the Internet is called
   a) censorship b) privacy infringement
   c) free speech d) spamming

3) The term _____ refers to a bad or criminal hacker.
   a) White Hat b) Cracker
   c) Slacker d) None of these

4) In computer security, _____ means that the information in a computer system only be accessible for reading by authorized parities.
   a) Confidentiality b) Integrity
   c) Availability d) Authenticity

5) The _____ is code embedded in some legitimate program that is set to "explode" when certain conditions are met.
   a) Trap doors b) Trojan horse
   c) Logic bomb d) Virus

P.T.O.

6) A _____ is a program that can infect other programs by modifying them, the modification includes a copy of the virus program, which can go on to infect other programs.

a) Worm b) Virus

c) Zombie d) Trap doors

7) Which of the following is a computer program designed to secretly invade systems and either modify the way in which they operate or alter the information they store ?

a) Computer virus b) Software piracy

c) Malware d) Spam

8) Which of the following is unsolicited commercial bulk email whose primary purpose is the commercial advertisement or promotion of a commercial product or service ?

a) Cyber terrorism b) Terrorism

c) Spam d) Malware

B) State **true** or **false** : **6**

1) Ethics is the branch of philosophy that deals with what is considered to be right and wrong.

2) Symbols used by businesses to identify their products can be protected as trademarks.

3) An online site is considered to be available if a person or program can gain access to pages, data, or services provided by the site when they are needed.

4) The first step in security risk management is planning.

5) Spam floods the internet and leaves people with no option other than to receive it.

6) Identity Theft is a type of crime in which personal information is stolen to commit fraudulent activity.

2. A) Explain scope and objectives of IT Act, 2000. **7**

   B) Explain in detail Asymmetric Cryptography with suitable examples. **7**

3. A) Explain different authentication measure used in IT. **7**

   B) Explain new concepts in Trademark Jurisprudence. **7**

4. A) Explain concept of E-Governance. **7**

   B) Explain Appointment and Functions of certifying authorities involved in IT Security. **7**

5. Explain Digital Signature technology along with creation and verification of Digital signature. **14**

6. Explain different security measures used to secure information technology. **14**

7. Write short note on **any 2** : **14**

   A) RSA Algorithm

   B) Cyber squatting and Reverse Hijacking

   C) Powers of adjudicating officer to impose penalty.

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SLR-H – 42

Seat No.	

M.C.A. – III (Semester – V) (Old) Examination, 2015
(Commerce and Management Faculty)
IT-Elective : PROGRAMMING LANGUAGE PARADIGMS

Day and Date : Friday, 11-12-2015 Total Marks : 70
Time : 10.30 a.m. to 1.30 p.m.

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

1. A) Choose the correct alternatives : **7**

1) CIP stands for _____
   a) Current Information Pointer
   b) Current Instruction Pointer
   c) Current Intermediate Pointer
   d) None of these

2) To transmit a data object as a _____ means that a pointer to the location of data object is made available to the subprogram.
   a) call-by-value b) call-by-name
   c) call by reference d) call by result

3) An association for an identifier is said to be _____ within a subprogram if it is part of the referencing environment.
   a) visible b) invisible
   c) inactive d) none of these

4) _____ is the basic operation for changing the binding of a value to a data object.
   a) Declaration b) Initialization
   c) Implementation d) Assignment

5) _____ identifies a sequence of lexical items forming a syntactic unit such as an expression, statement, subprogram call or declaration.
   a) Semantic analyzer b) Syntactic analyzer
   c) Lexical analyzer d) Optimizer

P.T.O.

6) A class of elementary data objects that have single attribute for its data object known as _____data object.
   a) composite b) scalar
   c) numeric d) none of these
7) A support environment consists of infrastructure services called _____ to manage the development of a program.
   a) Environment framework b) Development environment
   c) Programming environment d) None of the above

B) State **True** or **False** : **7**

1) A data object represents a container for data values.
2) The activation record is created new each time the subprogram is called.
3) A compiler is a translator whose source language is low level language.
4) A parameter transmitted by result is used only to transmit a result back from a subprogram.
5) A noise word is an identifier used as a fixed part of the syntax of a statement.
6) COBOL was designed as a list processing functional language.
7) If we can detect all type errors statistically in a program, we say that the language is strongly typed.

2. A) Explain in detail referencing environment. **7**

   B) Write a note on development of early languages. **7**

3. A) What is syntax ? Write the syntactic elements of a language. **7**

   B) Explain in detail various composite data types. **7**

4. A) Define language summaries. Explain Language summaries of Java. **7**

   B) Define Sequence control. Explain in detail tree structure representation with example. **7**

5. A) Explain in detail heap storage management. **7**

   B) Explain the recursive subprograms with example. **7**

6. A) Explain in detail classes of binding time. **7**

   B) What is translator ? Explain in detail translator and virtual machine. **7**

7. A) Define programming language. Explain different language paradigms. **7**

   B) Explain the assignment and initialization with example. **7**

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SLR-H – 43

Seat No.	

M.C.A. (Part – III) (Semester – V) (Old) Examination, 2015
Commerce and Management Faculty
IT Elective : ADVANCED UNIX

Day and Date : Friday, 11-12-2015 Total Marks : 70

Time : 10.30 a.m. to 1.30 p.m.

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*** *questions.*

1. Choose correct alternative: **14**

1) The interface to the Kernel is a layer of software called the system calls

A) Operating system B) System calls

C) Shell D) None of above

2) Almost all commercial UNIX file systems support at least _____ character filenames.

A) 36 B) 125 C) 155 D) 255

3) When the process is doing operations like assignments, comparisons, looping, then it is said that the process is in running in _____

A) User Mode B) Kernel Mode

C) Process Mode D) None of above

4) _____ is intermediate between file system and block device for interaction.

A) Shock absorber B) Cache RAM

C) Cache Block D) Buffer Cache

P.T.O.

5) Each open file (or device) has a v-node structure that contains information about the type of file and pointers to functions that operate on the file.

A) i-Node B) Tree-Node

C) v-Node D) None of above

6) A filter becomes a _____ when the same program generates the filter's input and reads the filter's output.

A) Pipes B) Process

C) Coprocess D) None of above

7) Process in UNIX get terminated by executing the _____ system call.

A) Kill() B) exit()

C) brk() D) None of above

8) The kernel programs, which control hardware device, character device and block device all these together is called _____

A) Kernel blocks B) Kernel groups

C) Kernel modules D) Kernel devices

9) A _____ is a counter used to provide access to a shared data object for multiple processes.

A) Stack B) Shared memory

C) Semaphore D) Queue

10) All variants of UNIX provides a well-defined, limited number of entry points into the kernel called _____

A) Process Call B) Function Call

C) System Call D) None of above

11) The _____ function sends a signals to a process or a group of processes.

A) Kill B) Raise C) Alarm D) Abort

12) A message queue is a linked list of messages stored within the kernel and identified by a message queue identifier.

A) True B) False

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

A) True B) False

14) FIPS stands for _____

2. a) Explain File Sharing. **7**

   b) Explain Signal handling. **7**

3. a) Explain Fork() in Unix. **7**

   b) Explain System Calls. **7**

4. a) Discuss about different process in Unix. **7**

   b) Explain buffering in Unix. **7**

5. Discuss about files and directories in Unix. **14**

6. Explain the all wait() statement with example. **14**

7. Explain the UNIX architecture with block diagram. **14**

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SLR-H – 44

Seat No.	

M.C.A. (Part – III) (Semester – V) (Old) Examination, 2015
(Commerce and Management Faculty)
IT Elective : WIRELESS MOBILE COMPUTING

Day and Date : Friday, 11-12-2015 Total Marks : 70
Time : 10.30 a.m. to 1.30 p.m.

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

1. Choose correct alternative : **14**

1) Each group of eight time slots is called a _____ frame, which is transmitted every 4.615 ms.

A) TDMA B) CDMA
C) FDMA D) SDMA

2) _____ are used to transfer signals to and from the cell phone.

A) Infrared Waves B) Electro-Magnetic Waves
C) Radio Waves D) None of the above

3) In _____, current resources are released before new resources are used.

A) Soft handoff B) Hard handoff
C) Inter-cell handoff D) Intra-cell handoff

4) _____ is the termination point of a tunnel toward a mobile node, for datagrams forwarded to the mobile node while it is away from home.

A) *Home Address* B) *Link Layer Address*
C) MAC Address D) Care-of-Address

P.T.O.

5) _____ occurs when a cracker is able to listen in on network traffic and identify the *MAC address* of a computer with network privileges.

A) IP spoofing B) *Sniffing*

C) *MAC spoofing* D) None of the above

6) The MS and the BSS communicate across the Um interface, also known as the _____

A) Uplink B) Downlink

C) Radio link D) All of the above

7) The _____ contains all the administrative information of each subscriber registered in the corresponding GSM network, along with the current location of the mobile.

A) HLR B) VLR

C) EIR D) None of the above

8) _____ is an international standard establishing how mobile devices can access information on the Internet.

A) WLAN B) WWW C) Internet D) WAP

9) The various nodes along the packet's path from first node to Last node must cooperate in order to make the information exchange successful. This cooperation process is called _____

A) Transmission B) Routing

C) Transformation D) All of the above

10) _____ is designed to allow nodes to dynamically discover a source route across multiple network hops to any destination in the ad hoc network.

A) Dynamic Source Routing (DSR)

B) Ad Hoc On-Demand Distance Vector Routing

C) Destination-Sequenced Distance-Vector Routing

D) Optimized Link State Routing

11) Kelpie is a SIP to XMPP gateway, originally designed for use for Voxbone's iNum network.

A) True B) False

12) Mobile Agent permit secure Intranet-style communications on public networks.

A) True B) False

13) Paging Channel (PCH) used to alert the mobile statin of incoming call.

A) True B) False

14) The MSC does not provides the interface between the GSM mobile network and the public fixed network.

A) True B) False

2. a) Explain different entities and terminologies in Mobile IP. **7**

   b) Describe the various Wireless Applications. **7**

3. a) Explain in detail about satellite systems. **7**

   b) Explain GPRS Applications. **7**

4. a) Explain MSC in detail. **7**

   b) Explain the concept of Ad – Hoc networks in detail. **7**

5. Write down location management with various techniques. **14**

6. Discuss TCP issues and its management. **14**

7. What are the mobile Agents explain in detail ? **14**

SLR-H – 46

Seat No.	

M.C.A. – III (Semester – V) (Commerce) Examination, 2015
ARTIFICIAL INTELLIGENCE AND ITS APPLICATIONS (New)

Day and Date : Wednesday, 2-12-2015 Total Marks : 70
Time : 10.30 a.m. to 1.00 p.m.

Instructions : *1) Q.* ***1*** *and Q.* ***7*** *are* ***compulsory****.*
2) Attempt ***any 2*** *Q. from Q.* ***2****, Q.* ***3*** *and Q.* ***4****.*
3) Solve ***any 1*** *Q. from Q.* ***5*** *and Q.* ***6****.*

1. A) State whether statement is **true** or **false** : **4**
   1) Predicate Logic is the study of statements and their Connectivity.
   2) Relational Knowledge provides a framework to compare two objects based on equivalent attributes.
   3) PROLOG is used for AI Applications.
   4) Second statement of Then-Clause is called Consequent.

   B) Define the following terms : **10**
   1) Tautologies
   2) Contradiction
   3) Arity
   4) Proposition
   5) Non-Monotonic Logic.

2. Attempt the following : **(7×2=14)**
   A) Explain the Hill Climbing algorithm.
   B) Explain the connective operators used in Proposition Logic.

3. Attempt the following : **(7×2=14)**
   A) What is Production System ? Discuss the different types of rules used in Production System.
   B) Explain the Architecture of Expert System.

P.T.O.

4. Attempt the following : **(7×2=14)**
   A) Discuss the Different task Performed through AI.
   B) Explain the steps of Natural Language Processing.

5. Attempt the following : **(7×2=14)**
   A) What is reasoning and Learning of Machine ? Explain with example.
   B) What is Knowledge Representation ? Discuss issues related to the Knowledge Representation.

6. Convert the following English Sentences into their PROLOG Equivalents and Construct PROLOG Program : **14**
   1) The fruits are sweets.
   2) The Snacks are delicious.
   3) The Mangos are sweets.
   4) The pickles are spicy.
   5) Ram loves Tea.
   6) Ramesh likes fruits if they are sweets.
   7) Prakash likes fruit if they are sweet and delicious.

7. Write short notes on (**any 2**) : **14**
   1) Operators in PROLOG
   2) Heuristic Search
   3) AI Problem Characteristics.

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SLR-H – 47

Seat No.	

M.C.A. (Commerce) Semester – V Examination, 2015
(New)
SOFTWARE TESTING AND QUALITY ASSURANCE

Day and Date : Friday, 4-12-2015 Total Marks : 70
Time : 10.30 a.m. to 1.30 p.m.

***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) _____ is dynamic process to check whether we have developed the product according to the customer requirements r not.
   a) Validation b) Verification
   c) Quality Assurance d) Quality Control

2) Retesting the entire application after a change has been made called as
   a) Full Regressing Testing b) Unit Regression
   c) Regional Regression d) Retesting

3) _____ measures the quality of a product, which is a specific part of the QA procedure work as a corrective process.
   a) Validation b) Verification
   c) Quality Assurance d) Quality Control

4) A metric used to measure the characteristic of documentation and code called as
   a) Process metric b) Product Metric c) Test metrics d) Defect metrics

5) Which of the following is non-functional software testing ?
   a) Unit Testing b) Block Box Testing
   c) Performance Testing d) Regression Testing

6) The process that deals with the technical and management issues of software development called as
   a) Delivery Process b) Testing Process
   c) Software Process d) Debugging Process

7) Informing to the developer which bug to be fix first is called as
   a) Severity b) Priority c) Fix ability d) Traceability

8) Retesting modules connected to the program or component after a change has been made is called
   a) Full Regression Testing b) Unit Regression
   c) Regional Regression d) Retesting

P.T.O.

9) An important metric is the number of defects found in internal testing compared to the defects found in customer tests, Status of test activities against the plan, test coverage achieved so far, comes under
   a) Process Metric b) Product Metric
   c) Test Metric d) Design Matrices

10) Alpha testing will be done at
   a) User's site b) Developers' site
   c) Both a) and b) d) None of these

11) SPICE Means
   a) Software Process Improvement and Capability Determination
   b) Software Process Improvement and Compatibility Determination
   c) Software Process Invention and Compatibility Determination
   d) Software Process Improvement and Control Determination

12) Requirements Specification, Planning, Test case design, Execution, Bug Reporting and Maintenance phases comes under
   a) SDLC b) STLC c) SQLC d) BLC

13) Standard and procedure for managing changes in an evolving software product is called
   a) Confirmation Management b) Confederation Management
   c) Configuration Management d) Comparability Management

14) _____ testing technique examines the basic program structure and it derives the test data from the program logic; Ensuring that all statements and conditions executed at least once.
   a) Blocx Box testing b) White Box Testing
   c) Grey Box Testing d) Closed Box Testing

2. A) Explain verification and validation process of V-Model ? **7**
   B) Explain Software Testing Life Cycle in detail. **7**

3. A) Explain Manual testing and automated testing in detail. **7**
   B) Explain Usability testing in detail. **7**

4. A) Explain 11 steps of testing process in detail. **7**
   B) What is Review ? Explain stages of a formal review. **7**

5. A) List different types of software testing. Explain any five in short. **7**
   B) What is a test case ? Explain different test case designing technique with example. **7**

6. A) What is need of quality ? Explain different quality factors in detail. **7**
   B) Explain in brief testing and debugging. **7**

7. Write short notes on **any two** : **14**
   A) Quality control and quality assurance
   B) White Box and Black Box Testing
   C) Review Meeting.

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SLR-H – 48

Seat No.	

M.C.A. – III (Semester – V) (Commerce) Examination, 2015
IT 53 : EMERGING TRENDS IN INFORMATION TECHNOLOGY (New)

Day and Date : Monday, 7-12-2015 Max. Marks : 70

Time : 10.30 a.m. to 1.30 p.m.

Instructions *: 1) Q.* ***1*** *and Q.* ***7*** *are* ***compulsory****.*
2) Attempt ***any 2*** *question from Q.* ***2****, Q.* ***3*** *and Q.* ***4****.*
3) Solve ***any 1*** *question from Q.* ***5*** *and Q.* ***6****.*

1. A) Select the correct alternatives : **8**

1) Any layer between the input and output layer is called as

a) hidden b) process c) middle

2) When output are directed back as input to same the network is a

a) feed forward b) feedback c) backpropagation

3) Building blocks of neural networks are

a) node b) element c) neuron

4) In _____ types of learning no desired output is associated with training data.

a) supervised b) unsupervised c) reinforcement

5) In fingerprint _____ is the pattern, ridges from circularly around a central point on the finger.

a) whorl b) loop c) arch

6) _____ is process where crisp quantities are converted into fuzzy.

a) defuzzification b) fuzzification c) set

7) _____ is used to identify the objects using Radio Frequency.

a) DNA b) Facial c) RFID

8) In crisp set $(A \cup B) = (B \cup A)$ it is _____ law.

a) commutative b) associativity c) identity

P.T.O.

B) Define the following terms : **6**

1) Fuzzy logic
2) Embedded system
3) Biometric.

2. Attempt the following : **(7×2=14)**

A) What is fuzzification and defuzzification ?

B) What is embedded system ? Explain the components of embedded system.

3. Attempt the following : **(7×2=14)**

A) What is crisp set ? Define the properties of crisp set.

B) Explain the Perceptron Model.

4. Attempt the following : **(7×2=14)**

A) Explain the different learning strategies.

B) Explain the facial recognition identification.

5. Attempt the following : **14**

A = {0.5, 0.4, 0.2, 2/5}

B = {0.3, 0.7, 3/5, 0.9}

Here A and B are Fuzzy Sets. Now apply following operations on fuzzy set :

1) Union
2) Intersection
3) Complement.

6. What is ANN ? Explain working of ANN along with its applications areas. **14**

7. Write short notes on (**any 2**) : **14**

1) Fingerprint identification
2) Hand geometry
3) Android.

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SLR-H – 49

Seat No.	

M.C.A. (Part – III) (Semester – V) Examination, 2015
(Commerce and Management Faculty)
ADVANCED INTERNET TECHNOLOGY (New)

Day and Date : Wednesday, 9-12-2015 Total Marks : 70
Time : 10.30 a.m. to 1.30 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) Fill the blanks with appropriate options. **7**

1) _____ element is used to group related controls in a single box.

a) <OPTION> b) <LABEL>

c) <FIELDSET> d) <DATALIST>

2) The _____ method in jQuery is used to set or get values of attributes of given element.

a) text() b) attr()

c) addClass() d) val()

3) SVG stands for _____

a) Scanner Vector Graphics b) Scanner Visual Graphics

c) Scalable Visual Graphics d) Scalable Vector Graphics

4) _____ is used to create animation using CSS3.

a) @keyframe b) .animation

c) animation() d) None of these

5) The following elements <header>, <footer>, <article>, <section> are the new elements in HTML5. These elements are called _____ elements.

a) Form b) Control

c) Semantic d) Multimedia

P.T.O.

6) _____ in HTML5 provides a standard way for browsers to run JavaScript in the background.

a) Modernizer b) Web Workers

c) Geolocation d) All of these

7) _____ semantic element is used to collect all navigations together.

a) <nav> b) <link>

c) <article> d) <header>

B) Simplify the **true** and **false** from following : **7**

1) Send() method is used to send request to Server page and get response back using Ajax in jQuery.

2) Response XML property of XMLHttpRequest is used to accept response sent by server in xml file.

3) Ajax created by John Resig on 2006, with motto “Write less and do more!!!”.

4) In PHP, to call method from object-> (arrow) operator is used.

5) CMS make it easier to display the same content in different ways.

6) The POST method is idempotent, means multiple identical requests should have the same effect as a single request.

7) Joomla! Proprietary package, You have to pay for download it.

2. A) What is traversing ? Explain any six DOM traversing methods in jquery. **7**

B) Explain the difference between GET and POST method. **7**

3. A) Explain different CSS3 background properties with example. **7**

B) Write and explain different HTML5 input elements with example. **7**

4. A) Explain PHP exception handling with example. **7**

B) Explain different CSS3 2D transformation methods. **7**

5. A) What is POSIX regular expression ? Explain different functions in detail. **7**

   B) Write HTML page to accept two numbers from user. When user will click on "calculate" button, request will be sent to PHP page using Ajax. Write PHP page to calculate power of first number using second number and display it on browser. **7**

6. A) Explain different elements used in Scalable Vector Graphics methods with example. **7**

   B) Write a code to design HTML page for accepting student details. There are two types of details to accept, Personal details and Curricular Details. In Personal Details accept Name, Address, Contact, Email etc. And in Curricular Details accept Name of college, Course, Last Year Marks (in percentage) etc. From these name of college and name of store these details in database using PHP page. **7**

7. Write a note on following :

   A) HTTP Request and Response. **5**

   B) Features of Joomla! **5**

   C) Content Management System. **4**

SLR-H – 50

Seat No.	

M.C.A. – III (Semester – V) (Commerce) Examination, 2015
OBJECT ORIENTED ANALYSIS AND DESIGN (New)

Day and Date : Friday, 11-12-2015 Max. Marks : 70
Time : 10.30 a.m. to 1.30 p.m.

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. Choose the correct alternative : **14**

1) A _____ is described as being immutable.
a) Object b) Class c) Literal d) None of these

2) _____ is also referred to as a part-whole relationship.
a) Association b) Aggregation c) Multiplicity d) Composition

3) _____ is the steps of Requirement Engineering.
a) Negotiation b) Transition c) Construction d) None of these

4) Identity is the property of an object which
a) Distinguishes it from all other classes
b) Distinguishes it from all other objects
c) Both a) and b)
d) None of these

5) SSAD stands for
a) System Structured Analysis and Design
b) Structured System Analysis and Design
c) Simple System Analysis and Design
d) None of these

6) _____ is a step which defines the scope and nature of the problem to be solved.
a) Elicitation b) Inception c) Elaboration d) Validation

7) Creating a new class from the existing class is called as
a) Polymorphism b) Inheritance
c) Abstraction d) None of these

2. A) Explain in details RUP with neat labeled diagram. **7**
   B) What is noun phrase approach ? Explain with suitable example. **7**

3. What is UML ? Explain all the diagrams of UML. **14**

4. A) What is need of object orientation ? **7**
   B) Compare object and class. **7**

5. A) Explain inheritance and polymorphism with appropriate example. **7**
   B) Draw the sequence diagram for online shopping cart system. **7**

6. What is OMT ? Explain in detail OMT by Jim Rumbaugh. **14**

7. Short notes : **14**
   i) Generalization
   ii) Aggregation
   iii) Composition
   iv) Association.

SLR-H – 51

Seat No.	

M.C.A. (Commerce) Direct Second Year Students (Bridge Course) Examination, 2015
Paper – I : DISCRETE MATHEMATICAL STRUCTURE

Day and Date : Tuesday, 15-12-2015 Max. Marks : 100
Time : 10.30 a.m. to 1.30 p.m.

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

1. Fill in the blanks. **20**

1) The total number of edges in a complete graph is always even (true/false) _____

2) A system consisting of non empty set and one or more n-ary operations on it, is called _____

3) A set with partial ordering relation is call _____

4) A graph in which all vertices have same degree is called as _____

5) A vertex of degree one is called _____

6) Every lattice is poset (True/False) _____

7) $(p \wedge \sim p)$ is always tautology (True/False) _____

8) The ceiling function C (4.9) = [4.9] is _____

9) Contra positive of (p –> q) is _____

10) A connected graph G has n vertices and e edges then number of regions r = _____

P.T.O.

2. A) "If you help me, then I will do my home-work". "If you do not help me, then i will go to sleep early". "If i go to sleep early, the teacher will punish me". Show that the above hypothesis lead to the conclusion "If I do not do my home-work, then the teacher will punish me". **10**

   B) Show that $P \rightarrow (Q \wedge R)$ and $(P \rightarrow Q) \wedge (P \rightarrow R)$ are equivalent. **10**

3. A) Define Lattice, distributive, bounded, complimented lattice. D36 is set of all the divisors of 36 and '/' is a divides b relation on it. Draw D36. **10**

   B) What is Hasse diagram ? Explain its steps. **10**

4. A) Solve the following equations and find values of x and y using matrix. **10**

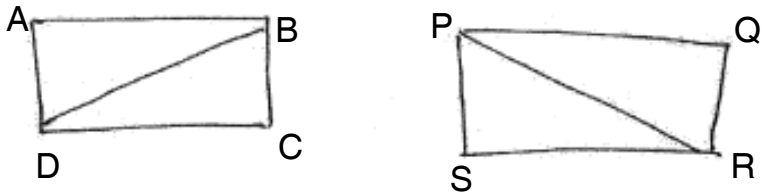
   $2x + 3y = 13; 4x - y = 5$

   B) Define Abelian group. If * is defined on set of all positive integer numbers (Z+)

   Such that $a*b = a + b + 1$ for $a, b \in Z$. Show that $< Z, * >$ is an Abelian group. **10**

5. A) What are isomorphic graphs, adjacency matrix and incidence matrix ? **10**

   B) Determine whether the following graphs are isomorphic. **10**



6. Explain the terms with example (**Any 2**). **20**
   i) Complete graph
   ii) r-regular graph
   iii) Bipartite and complete bipartite graphs.

7. A) Explain tautology and contradiction in mathematical logic with example. **10**

   B) What are group and Abelian group ? Explain its properties. **10**

SLR-H – 52

Seat No.	

M.C.A. (Commerce) (Direct II Year Students Bridge Course) Examination, 2015
OPERATING SYSTEM (Paper – II)

Day and Date : Wednesday, 16-12-2015 Total Marks : 100
Time : 10.30 a.m. to 1.00 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) Fill in the blanks : **14**

1) Process State is a part of
   1) Process control block 2) Inode
   3) File Allocation Table 4) None of the above
2) Virtual Memory is commonly implemented by _____
   1) Segmentation 2) Swapping
   3) Demand Paging 4) None of the above
3) _____ page replacement algorithm suffers from Belady's anomaly.
   1) LRU 2) MRU
   3) FIFO 4) LIFO
4) _____ OS pays more attention on the meeting of the time limits.
   1) Distributed 2) Network
   3) Real time 4) Online
5) A process said to be in _____ state if it was waiting for an event that will never occur.
   1) Safe 2) Unsafe
   3) Starvation 4) Deadlock
6) The removal of process from active contention of CPU and reintroduce them into memory later is known as _____
   1) Interrupt 2) Swapping
   3) Signal 4) Thread

7) _____ allocates the largest hole (free fragment) available in the memory.

1) Best Fit 2) Worst Fit

3) First Fit 4) None of the above

8) A major problem with priority scheduling is _____

1) Definite blocking 2) Starvation

3) Low priority 4) None of the above

9) Spooling is an acronym for _____

1) Simultaneous Peripheral Operating System On Line

2) Similar Peripheral Operation On Line

3) Simultaneous Peripheral Operation On Line

4) Simultaneous Project Operating System On Line

10) An address generated by the CPU is referred to as a _____

1) Logical address 2) Physical address

3) Variable address 4) Both 1) and 2)

11) To avoid the race condition the number of processes that may be simultaneously inside their critical section is _____

1) 0 2) 1

3) 2 4) 3

12) Thrashing _____

1) Always occurs on large computers

2) Can always be avoided by swapping

3) Can be caused by poor paging algorithm

4) None of these

13) Which amongst the following is not an advantage of distributed systems ?

1) Reliability 2) Incremental growth

3) Resource sharing 4) None of the above

14) The main reason to encrypt a file is to _____

1) Reduce its size 2) Secure it for transmission

3) Prepare it for backup 4) Include it in the start-up sequence

B) Answer in **2-3** sentence (**any 3**) : **6**

1) What are the services of operating system ?

2) What is spooling ?

3) What are the states of process ?

4) What are the different types of scheduler ?

2. Attempt the following (**any 2**) : **20**

1) What is process ? Describe in detail structure and purpose of PCB.

2) Differentiate Pre-emptive and Non-pre-emptive scheduling.

3) Explain the need for synchronization.

3. Attempt the following (**any 2**) : **20**

1) Explain with example various disk scheduling algorithms.

2) What is deadlock ? Explain the necessary condition for deadlock ?

3) Explain segmentation memory management scheme in detail.

4. Attempt the following : **20**

1) What is page fault ? Write down the steps for handling the page fault ?

2) Explain Swapping in detail.

5. Discuss the Network operating system along with its advantages and disadvantages. Explain NOS architecture in detail. **20**

6. Attempt the following : **20**

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

a) First Come First Served (FCFS)

b) Shortest Job First (SJF)

c) Priority Scheduling

d) Round Robin Scheduling (time quantum = 3)

Process	Burst Time	Priority
P1	5	4
P2	12	1
P3	16	3
P4	18	5
P5	2	2

7. Calculate the average cylinder movements for the all disk scheduling algorithms. **20**

Consider if disk head is initially at cylinder 60

Consider a reference string 87, 170, 40, 150, 36, 72, 66, 15.
