SLR-GL – 6

Seat No.	

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

Day and Date : Saturday, 3-5-2014 Total Marks : 70
Time : 11.00 a.m. to 2.00 p.m.

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

1. A) Fill in the blanks : **6**

1) The purpose of parallel processing is to get maximum _____
   a) memory utilization b) I/O utilization
   c) through put d) none

2) The number of times the page appears in the cache memory is called _____
   a) Hit b) Miss c) Hit ratio d) None

3) The memory in which following information is lost when power is _____
   a) Virtual memory b) Dynamic RAM
   c) Static RAM d) Associative memory

4) A micro programmed control unit _____
   a) is faster than Hard-wired control
   b) easy to implement of new instruction
   c) useful to run small program
   d) usually refers to the control unit of microprocessor

5) The addressing mode used in the instruction Add R1, (1001) _____
   a) Direct addressing b) Register addressing
   c) Immediate addressing d) Indirect addressing

6) The decimal equivalent of the binary no. 11100.001 is _____
   a) 28.125 b) 30.12 c) 28.50 d) none of these

P.T.O.

B) State whether following statement are **true** or **false** **4**

1) The AND gate produce output 1 if both input are 1.
2) In 80386 microprocessor having 24 bit address bus.
3) The output of half adder is sum and carry.
4) In Hardwired control unit it is difficult to add new instruction.

2. Answer in **1** – **2** sentences : **(5×2=10)**

i) What is multiplexer ?
ii) Explain BCD.
iii) Define decoder.
iv) Burning the RAM.
v) What is compiler ?

3. Attempt **any four** from following : **(4×5=20)**

i) Differentiate between Hardwired and Micro program control unit.
ii) Explain 8 : 1 MUX
iii) Differentiate RISC and CISC.
iv) List various addressing modes and explain any two in detail.
v) Explain the concept and use of Encoder and Decoder
vi) What is half adder ?

4. Attempt **any two** from following : **(2×10=20)**

i) Explain 80286 microprocessor architecture in detail.
ii) Explain different types of Parallel Processing in detail.
iii) What is flip flop ? Explain any two with block diagram and example.

5. What are the components of microprocessor ? Explain 80486 microprocessor in detail. **10**

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SLR-GL – 11

Seat No.	

M.C.A. (Part – I) (Semester – II) (Old) Examination, 2014
(Commerce)
DATA STRUCTURE USING C

Day and Date : Monday, 5-5-2014 Total Marks : 70
Time : 11.00 a.m. to 2.00 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** questions from Q. **5** to Q. **6**.*
*4) Figures to the **right** indicate **full** marks.*

1. A) Select the correct alternative : **10**

1) The situation when in a linked list START = NULL is
   a) underflow b) overflow c) houseful d) saturated
2) Which of the following name does not relate to stacks ?
   a) FIFO lists b) LIFO list c) Piles d) Push-down lists
3) A data structure where elements can be added or removed at either end but not in the middle
   a) Linked lists b) Stacks c) Queues d) Deque
4) The five items : A, B, C, D and E are pushed in a stack, one after the other starting from A. The stack is popped four times each element is inserted in a queue. Then two elements are deleted from the queue and pushed back on the stack. Now one item is popped from the stack. The popped item is
   a) A b) B c) C d) D
5) The correct way to represent a structure in persons family is
   a) struct person {int age, person mother, person father}
   b) struct person {int age, person mother, person father}
   c) struct person {int age, person *mother, person*father}
   d) none of the above

P.T.O.

6) If a node having two children is deleted from a binary tree, it is replaced by its
   a) Preorder predecessor b) Inorder successor
   c) Inorder predecessor d) none of above

7) A mathematical model with a collection of operation defined on that model is called
   a) algorithm b) data structure
   c) primitive data type d) abstract data type

8) For an undirected graph with n vertices and e edges, the sum of the degree of each vertex is equal to
   a) 2n b) (2n – 1)/2 c) 2e d) $e^2/2$

9) A linear list of elements in which deletion can be done from one end (front) and insertion can take place only at the other end (rear) is known as a
   a) queue b) stack c) tree d) linked list

10) What is the postfix form of the following prefix expression -A/B*C$DE
   a) ABCDE$*/- b) A-BCDE$*/- c) ABC$ED*/- d) A-BCDE$*/

B) State **true** or **false** **4**

1) If a node in BST has two children, then its inorder predecessor has no right child.
2) The smallest element of an array's index is called its lower bound.
3) In a circular linked list components are all linked together in some sequential manner.
4) The data structure required for Breadth First Traversal on a graph is queue.

2. A) What are circular queues ? Write down routines for inserting and deleting elements from a circular queue implemented using arrays. **7**

   B) Two Binary Trees are similar if they are both empty or if they are both nonempty and left and right Sub Trees are similar. Write an algorithm to determine if two Binary Trees are similar. **7**

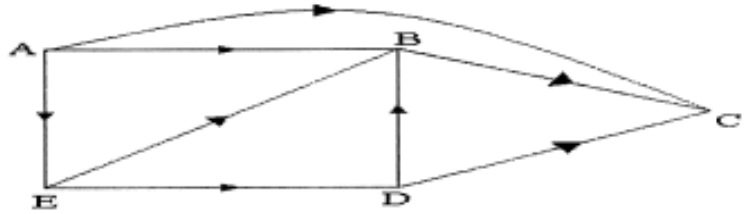
3. A) What is a Binary Search Tree (BST) ? Make a BST for the following sequence of numbers.
   67, 78, 56, 34, 65, 45, 90, 43, 35. **7**
   Traverse the tree in preorder, inorder and postorder.

   B) Two linked lists contain information of the same type in ascending order. Write a module to merge them to a single linked list that is sorted. **7**

4. A) How do you rotate a Binary Tree ? Explain right and left rotations with the help of an example. **7**

   B) What is a stack ? Write an algorithm to push element in to a stack using array. **7**

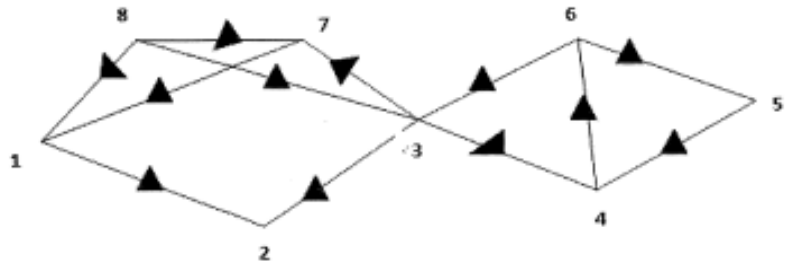
5. A) What are the different ways of representing a graph ? Represent the following graph using those ways. **7**



   B) What is data structure ? Explain different ways of implementing data structure with example. **7**

6. A) Show the result of running BFS and DFS on the directed graph given below using vertex 3 as source. Show the status of the data structure used at each stage. **7**

   B) Explain different linked list with example. **7**



7. Write a program for multiplication of two polynomial using arrays. **14**

SLR-GL – 15

Seat No.	

M.C.A. I (Semester – II) (Commerce) Examination, 2014
PROBABILITY AND COMBINATORICS (Old)

Day and Date : Thursday, 15-5-2014 Max. Marks : 70

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

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

1. A) Select correct alternatives. **7**

1) The number of ways of 5 people standing in queue
a) 24 b) 120 c) 720 d) none

2) $M_{Cx}(t)$ = _____, where C is constant
a) $CM_x(t)$ b) $M_C(xt)$ c) $M_x(Ct)$ d) M(Cxt)

3) Probability of getting number which is divisible by 3 randomly selected from 1 to 32 is
a) 0.32 b) 0.3125 c) 0.23 d) 3.2

4) Variance of Geometric distribution is

a) $\frac{q}{p}$ b) $\frac{1}{p}$ c) $\frac{p}{q^2}$ d) $\frac{q}{p^2}$

5) The limiting form of Binomial distribution is
a) Hypergeometric b) Poisson
c) Geometric d) None

6) $P(X) = 0.15, P(Y) = 0.25, P(X \cap Y) = 0.10$ then $P(X \cup Y)$ is
a) 0.10 b) 0.20 c) 0.30 d) 0.40

7) $E(2X + 3)$ =
a) E(2x) b) 2E(X) + 3 c) E(3) d) 2x + 3

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

1) A random variable which takes infinite number of values in an interval is discrete random variable.

2) The expected value and variance of a Poisson random variable are both equal to its parameter θ.

P.T.O.

3) Two event A and B are mutually exclusive if A occurs and B does not occurs and vice versa.

4) Variance of constant is one.

5) If $P(E \cap F) = P(E) \times P(F)$ then event E and F are dependent.

6) A derangement is permutation of objects that leaves no objects in its original position.

7) The probability of impossible event is zero.

2. A) Find generating function for discrete Numeric function given by $a_n = (-1)^n$ for $n = 1, 2, 3, ...$ **7**

   B) A bag contains 7 red and 3 black marbles and another bag contain 4 red and 5 black marbles. One marble is transferred from the first bag into second bag and then a marble is taken out of second bag at random. If this marble happens to be red. Find the probability that a black marble was transferred. **7**

3. A) State and prove Pigeonhole principle with example. **7**

   B) How many positive integer solution are there to the equation $x_1 + x_2 + x_3 = 15$ subject to the condition $x_1 \leq 5$, $x_2 \leq 6$ and $x_3 \leq 8$. **7**

4. State Geometric distribution and find its mean and variance. And derive memoryless property of Geometric distribution. **14**

5. A) Solve the recurrence relation $a_n - 5a_{n-1} + 6a_{n-2} = 2 + 3n$. **8**

   B) Prove that $\binom{m+n}{2} - \binom{m}{2} - \binom{n}{2} = m \times n$. **6**

6. A) Define cumulant generating function. State its properties. **7**

   B) Urn A contains 3 red and 3 black balls. Urn B contains 4 red and 6 black balls. If a ball is randomly selected from each Urn. What is the probability that the ball will be the same color ? **7**

7. A) Find the 6^{th} term in the expansion $\left(x^2 + \frac{1}{y^3}\right)^9$. **7**

   B) The joint density function of X and Y is $f(x, y) = \begin{cases} xy & 0 < x < 1, 0 < y < 2 \\ 0 & \text{otherwise} \end{cases}$ **7**

   Find :

   a) E(Y)

   b) $P\{X + Y < 1\}$

SLR-GL – 20

Seat No.	

M.C.A. (Semester – II) (Commerce) Examination, 2014
MANAGEMENT INFORMATION SYSTEM AND ENTERPRISE RESOURCE PLANNING (New)

Day and Date : Thursday, 15-5-2014 Total Marks : 70

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

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

1. Select the correct alternative. **10**

1) A _____ is a process that takes place prior to the actual performance of a course of action that has been chosen.
A) Support B) Decision C) Selection D) Solution

2) _____ is a set of enterprise modeling tools for effective implementation.
A) MRP B) ERP C) SCM D) Extended ERP

3) ERP packages are mostly built on the
A) Oracle B) SQL C) OOP D) java

4) The _____ is an arrangement of data processing and information systems in an orderly manner to support the management in achieving the business objectives.
A) EIS B) MIS C) ES D) DSS

5) The _____ applications provide the reports with specific key decisions in the production function.
A) Operations Updates B) Action Update
C) Decision Analysis D) Information Update

6) _____ occurs where the decision maker tires of making decisions.
A) Delay B) Information overload
C) Mental fatigue D) Decision Fatigue

7) For divisional or departmental purposes, _____ provides the account codes to be used in recording revenue, expense, accounts receivable and accounts payable activity.
A) Financial accounting B) Marketing Management
C) Personnel Management D) Costing

8) Information which is obtained by photographs, audio recordings, image recordings are categorized as _____ source of information.
   A) General-Specific B) Secondary
   C) Primary D) Free-fee

9) The _____ process is which package that you select will decide the success or failure of the project.
   A) Project planning B) Screening
   C) Package evaluation D) Testing

10) _____ of a project is a factor that impacts the overall success of the ERP implementation.
   A) Resource B) Risk C) Speed D) Accuracy

2. Give the answers in **one** or **two** sentences. **(5×2)**

   i) Quality parameters of information

   ii) Define ERP

   iii) Define DSS

   iv) Define EIS

   v) Define CRM.

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

   i) Define Information. What are the types of Information ?

   ii) Explain different Security measures of Information System.

   iii) Explain ERP Related Technology : Supply Chain Management in brief.

   iv) What are the limitations of ERP systems ?

   v) What are the needs and characteristics of EIS ?

   vi) Explain different threats to information system.

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

   i) Explain ERP Implementation life cycle in detail.

   ii) MIS supports a manager in his functional responsibilities. Explain.

   iii) State and explain the objectives of information systems auditing in detail.

5. What are the success and failure factors of ERP implementation ? **(1×10)**

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SLR-GL – 23

Seat No.	

M.C.A. II (Semester – III) Examination, 2014
(Commerce and Management Faculty)
OBJECT ORIENTED PROGRAMMING USING C++

Day and Date : Thursday, 8-5-2014 Total Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

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

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

a) In a class, a member declared as _____ is not accessible from outside the class.
   a) private b) protected c) both a and b d) public

b) Member functions of a class are normally declared as
   a) public b) local c) protected d) private

c) A variable is defined within a block in body of a function. Which of the following is true ?
   a) It is visible throughout the function
   b) It is visible from the point of definition to the end of the program
   c) It is visible from the point of definition to the end of the block
   d) It is visible throughout the block

d) When the break statement is encountered inside a loop, which one of the following occurs ?
   a) Control goes to the end of the program
   b) Control leaves the function that contains the loop
   c) Causes an exit from the innermost loop containing it
   d) Causes an exit from all the nested loop

e) An exception is caused by

a) a hardware problem b) a syntax error

c) a run time errors d) all

f) Which of the following cannot be passed to a function ?

a) Reference variable b) Arrays

c) Class objects d) Header files

g) Which of the following is a keyword ?

a) eof() b) printf()

c) protected d) final

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

a) The value of the expression 13% 4 is 3.

b) The break statement is used to exit from all the nested loops.

c) The default case is required in the switch selection structure.

d) A structure variable cannot be passed as an argument to a function.

e) A set of functions with the same return type are called overloaded function.

f) A C++ array can store values of different data types.

2. a) Distinguish between the following : **7**

Time T2 (T1);

Time T2 = T1;

(T1 and T2 are the objects of time class)

b) Generate Fibonacci series by overloading prefix unary operator. **7**

3. a) Do you think friend function violates encapsulation ? Explain.

b) Can we use the same function name for a member function of a class and an outside function in the same program file ? If yes, how are they distinguished ? If no, give reasons.

4. Write a short note on (**any two**) : **14**

   a) New and delete operator

   b) Class template

   c) Virtual function.

5. a) How is a member function of a class defined ? Give example. **7**

   b) When do we use the protected visibility specifier to a class member ? **7**

6. What does inheritance mean in C++ ? What are the different forms of inheritance ? Give and example for each. **14**

7. Create a class called employee that contains a name and an employee number. Include a member function called getdata() to get data from the user for insertion into the object, and another function called putdata() to display the data. Assume the name has no embedded blanks.

   Write a main () program to exercise this class for 100 employees. **14**

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SLR-GL – 27

Seat No.	

M.C.A. (Part – II) (Semester – IV) (Commerce) Examination, 2014
SOFTWARE TESTING AND QUALITY ASSURANCE

Day and Date : Wednesday, 7-5-2014 Total Marks : 70

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

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

1. A) Choose the correct alternative from the given alternatives. **14**

1) Before doing integration testing this testing must have been done

a) Unit testing b) System testing

c) Stress testing d) None of above

2) Verification is

a) Process based b) Product based

c) Project based d) All of above

3) What is the correct Software process cycle ?

a) Plan-Act-Check-Do b) Plan-Do-Check-Act

c) Plan-Act-Do-Check d) Plan-Do-Act-Check

4) What are the qualities of good software ?

a) Reusability b) Portability

c) Interoperability d) All of the above

5) _____ measures the external characteristics of software.

a) Product Metrics b) Project Metrics

c) Process Metrics d) Software Metrics

6) Testing object oriented class operations is made more difficult by

a) Encapsulation b) Inheritance

c) Polymorphism d) Both b and c

7) Cyclometric complexity method comes under which testing method ?

a) White box b) Black box

c) Green box d) Yellow box

P.T.O.

8) Retesting modules connected to the program or component after a change has been made

a) Full Regression testing b) Unit testing

c) Regional Regression d) Retesting

9) Which of the following is not a static testing technique ?

a) Error guessing b) Walkthrough

c) Data Flow analysis d) Inspection

10) The process starting from terminal module is called

a) Top down integration b) Bottom up integration

c) Module integration d) None of the above

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

1) Unit testing is high level testing.

2) Cost of Quality = Prevention cost + Appraisal cost + Failure cost.

3) In any type of peer review, the focus of the review is on the product and not the procedure.

4) Cause Effect Graphing is type of white box testing.

2. a) Explain clean room software development. **14**

b) What are the needs and activities of SQA ?

3. a) What is Test case ? Explain content of test case with example. **14**

b) Explain SEI Capability Maturity Model.

4. a) Explain testing web based application. **14**

b) Difference between white box testing and black box testing.

5. a) Explain Control Flow Analysis, Cyclometric Analysis. **14**

b) Explain Dynamic testing need and advantages.

6. a) Explain static testing Vs dynamic testing. **14**

b) Explain Software Process Improvement.

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

a) Verification and Validation

b) Six Sigma

c) Tester Workbench.

SLR-GL – 3

Seat No.	

M.C.A. I (Semester – I) Examination, 2014
(Commerce) (Old)
PRINCIPLES AND PRACTICES OF MANAGEMENT AND ORGANIZATIONAL BEHAVIOR

Day and Date : Thursday, 8-5-2014 Total Marks : 70

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

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

1. a) Choose the correct option and rewrite the sentences. **7**

1) Functional managers are responsible

a) single area of activity

b) to the upper level of management

c) for complex organizational sub-units

d) none of these

2) Policies are sometimes defined as

a) shortcut for thinking b) action plan

c) substitute for strategy d) substitute for management authority

3) Communication begins with

a) encoding b) idea recognition

c) decoding d) channel selection

4) One method of bringing a group to agreement is called

a) proportional values b) consensus

c) accordance d) conformance

P.T.O.

5) The problem solving process begins with
   a) clarification of the situation
   b) establishment of alternatives
   c) identification of the difficulty
   d) isolation of the cause

6) _____ motivation is a drive to relate to people on a social basis.
   a) Affiliation
   b) Competence
   c) Power
   d) Achievement

7) If emphasis is placed on penalties, the leader is applying _____ leadership.
   a) positive
   b) participative
   c) autocratic
   d) negative

b) State **true** or **false**. **7**

1) If policy is not thought out and established, a situation requiring action will arise.
2) F.W. Taylor is called father of scientific management.
3) Staffing function deals with work allocation.
4) Product organizations believe in participative decision making.
5) Autocratic model of Organisational behaviour depends on power.
6) Leadership is the process of influencing and supporting others to work enthusiastically toward achieving objectives.
7) Robert R White developed the managerial grid.

2. a) Explain theory X and Z. **7**

   b) Write a note on : Conflict Management. **7**

3. a) What is Johari Window ? Explain in short. **7**

   b) Define organization behavior ? Explain its importance. **7**

4. a) Explain Herbert Simson's model in short. **7**

   b) What is functional organization ? Explain it by giving suitable example. **7**

5. a) What are the techniques used for unprogrammable decisions ? Explain in short. **7**

   b) Explain various decision making tools. **7**

6. a) Explain various techniques used for decision making under uncertainty. **7**

   b) Explain the evolution of management thought. **7**

7. Imagine that you are appointed as the manager of the company who is responsible for overall development and functioning of the organization. Prepare a detail plan for the various functions that you will carry in order to become successful. **14**

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SLR-GL – 37

Seat No.	

M.C.A. – III (Semester – V) (Commerce) Examination, 2014
SOFTWARE IT PROJECT MANAGEMENT

Day and Date: Tuesday, 6-5-2014 Max. Marks : 70

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

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

1. A) Select the correct alternative : **10**

1) The estimated maximum amount of time needed to complete a task
   A) Optimistic Duration (OD) B) Pessimistic Duration (PD)
   C) Expected Duration (ED) D) Most likely Duration (MD)

2) Extent to which access to s/f or data by unauthorised person can be controlled by
   A) Reliability B) Efficiency C) Usability D) Integrity

3) Extent to which the program satisfies its specification and fulfills the customers mission objectives achieved by
   A) Usability B) Correctness C) Timeliness D) Efficiency

4) The degree to which the s/f handles bad input data or inappropriate user interaction
   A) Robustness B) Richness C) Efficiency D) Intuitiveness

5) In this testing each time a new module is added as port of integration testing the s/f changes
   A) Smoke Testing B) Quality Testing
   C) Regression Testing D) Bottom-up Testing

6) A set of tools and process features (on compassing other configuration mgt. elements) used by the software team to implement effective software config. management
   A) Human element B) Construction element
   C) Process element D) Component element

P.T.O.

7) The process is decomposed into a relatively small set of tasks and the effort required to accomplish each task is estimated
   A) FP-based estimation B) Process based estimation
   C) Use-case based estimation D) Reconciling estimates
8) Risk can be uncovered after careful evaluation of project plan, the business and technical environment in which project is being developed, other reliable information sources, etc.
   A) Technical risk B) Business risk
   C) Predictable risk D) Known risk
9) Users role not involved in system implementation
   A) Acquire resources
   B) Train personnel
   C) Provide necessary resources for assuming quality
   D) Maintain system
10) This type of COCOMO considers the influence of four groups of attributes on the project as a whole i.e. environment, tools, people and project
   A) Intermediate COCOMO B) Basic COCOMO
   C) Complete COCOMO D) COCOMO – II

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

1) Project management process may be viewed on two dimensions, project life cycle and knowledge areas.
2) Project processes are performed by users group.
3) Main focus of unit testing is on “Verification”.
4) Among the five stages of group formation, performing is a fifth step.

2. Solve the following : **14**

a) Explain cost of quality detail, also explain causes of poor quality s/f products.

b) Explain COCOMO model.

3. Attempt **any two** : **14**

a) What is the use of Configuration Identification (CI) ? Explain its considerations.

b) What is project management ? Explain characteristics of project.

c) Explain in detail system testing process.

4. Solve the following : **14**
   a) Explain configuration management tools.
   b) Explain risk identification process.

5. Describe a role of user in project management, software construction and implementation. **14**

6. Describe four aspect of cost of quality. Which aspects is less expensive and why ? **14**

7. Write short notes on (**any two**) : **14**
   A) Gantt chart
   B) Version and release management
   C) Performance management.

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SLR-GL – 38

Seat No.	

M.C.A. (Part – III) (Semester – V) Examination, 2014
(Commerce and Management Faculty)
EMERGING TRENDS IN IT

Day and Date : Thursday, 8-5-2014 Total Marks : 70
Time : 11.00 a.m. to 2.00 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. Choose correct alternative : **14**

1) In _____ degree of membership of element is between 0 and 1.
   a) Fuzzy set b) Crisp set
   c) Empty set d) None of these

2) Embedded software is also called as
   a) Accounting software b) Word processor
   c) Firmware d) None of these

3) _____ Learning is also called as learning without teacher.
   a) Supervised b) Unsupervised
   c) Reinforcement d) None of these

4) _____ membership function is specified by four parameters.
   a) Trapezoidal b) Triangular
   c) Gaussian d) Fourier

5) In embedded system mostly _____ processor/processors are used.
   a) Digital Signal Processor b) Microprocessor
   c) Microcontroller d) Both a and c

P.T.O.

6) _____ languages are used for developing expert system.

a) Cobol and Basic
b) Lisp and Prolog
c) C and Pascal
d) Fortron and VB

7) _____ is inventor of fuzzy logic.

a) John Yen
b) Sugeno
c) Lotfi zadhe
d) Mamdani

2. a) Explain all types of activation functions used in neural network. **7**

   b) Define embedded system. Explain architecture of embedded system. **7**

3. a) Differentiate Crisp set and Fuzzy Set. **7**

   b) What is machine learning ? Explain components of learning system. **7**

4. a) What is knowledge management ? Explain knowledge management components. **7**

   b) What is GIS ? Explain the nature of geographic data. **7**

5. What is Artificial Neural Network ? Explain applications of ANN in brief. **14**

6. What is Fuzzy Inference System ? Explain the components of Fuzzy Inference System. Explain Fuzzification and Defuzzification in brief. **14**

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

   1) Need for Expert System

   2) E-Learning

   3) Face Recognition.

_____

SLR-GL – 41

Seat No.	

M.C.A. – III (Semester – V) Examination, 2014
(Commerce and Management Faculty)
IT Elective : PROGRAMMING LANGUAGE PARADIGMS

Day and Date : Tuesday, 13-5-2014 Total Marks : 70

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

***Instructions** : 1) Q. **1** and Q. **7** is **compulsory**.*

*2) Solve **any two** questions from Q. **2**, Q. **3** and Q. **4**.*

*3) Solve **any one** from Q. **5** and Q. **6**.*

*4) Figures to **right** indicate marks to a question or sub question.*

1. A) Choose correct alternative. **10**

1) The operator + in expression "a + b" is _____ operator.

a) Unary b) Dyadic c) Simple d) Object-oriented

2) Each program or subprogram has a set of identifier associations available for use in referencing during execution. This set of identifier associations termed as _____ of subprogram (or program).

a) Activation b) Accumulation

c) Definition d) Referencing environment

3) The association for data object might be retained until subprogram is called again, as it was in previous call is called

a) Deletion b) Attention c) Retention d) Implementation

4) An elementary data object _____ contains the location of another data object or may contain null.

a) Integer b) String c) Enum d) Pointer

5) A _____ is one of the central data structure in every translator which contains an entry for each different identifier encountered in source program.

a) Symbol table b) Linked list

c) Stack d) Data table

6) A _____ file organized so that any single component may be accessed random.
   a) Fixed access b) Binary
   c) Direct access d) None of these

7) The pointer to the current activation record is known as _____ pointer.
   a) this b) current instruction
   c) current environment d) pointer to function

8) _____ of MIT designed list processing for the IBM 704.
   a) John McCarthy b) John Backus
   c) John Blackberry d) John Zadeh

9) The _____ is called as location counter contain memory address of next instruction.
   a) Activation b) Association
   c) Program address register d) Pointer

10) The time during program formulation or processing when the choice is made is termed _____ of that property of statement.
   a) Execution time b) Binding time
   c) Translation time d) Compilation timeout

B) State **true** or **false** : **4**

a) Activation is implemented as two parts : Code Segment and Activation Record.

b) Binary file are the primary form of file for input-output to the user.

c) A readable program is often said to be self documenting.

d) Infix notation are more suitable for Dyadic Operations.

2. Solve the following : **14**

a) Explain in detail parameter transmission.

b) Explain Binding and Binding Times with its Classes and Importance.

3. Explain the following : **14**

a) Programming Language Paradigms.

b) Simple Call-return Subprograms.

4. Solve the following : **14**

   a) Explain the properties of types and objects.

   b) Explain Integer data type with three storage representations.

5. Solve the following : **14**

   a) Explain structure of compiler.

   b) Explain all elements of program those requiring storage.

6. Write a note on : **14**

   a) Various Stages in Translation.

   b) Java language elements.

7. Solve the following : **14**

   a) Write note on evolution of Software Architecture.

   b) Explain in detail Firmware Computers.

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SLR-GL – 9

Seat No.	

M.C.A. (Commerce) (Part – I) (Semester – I) Examination, 2014
DISCRETE MATHEMATICS (New)

Day and Date : Saturday, 10-5-2014 Max. Marks : 70

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

***Instructions** : 1) **All** questions are **compulsory**.*

*2) Figure to the **right** indicates **full** marks.*

1. A) Fill in the blanks. **(5×1)**

   i) A single card is drawn from an ordinary deck of 52 cards, the probability that the card is queen is _____

   ii) If a graph has 5 vertices and 7 edges, then the size of its adjacency matrix is _____

   iii) If every vertex of a simple graph has the same degree, then the graph is called _____ graph.

   iv) If a student is getting admission in 4 different Engineering Colleges and 5 Medical Colleges, then the number of ways of choosing one of the colleges is _____

   v) A _____ is a connected acyclic graph.

   B) State whether following statements are **true** or **false**. **(5×1)**

   i) Every sub-graph of a planar graph is planar.

   ii) In every cyclic group, every element is a generator.

   iii) The set of integers is an abelian group under addition.

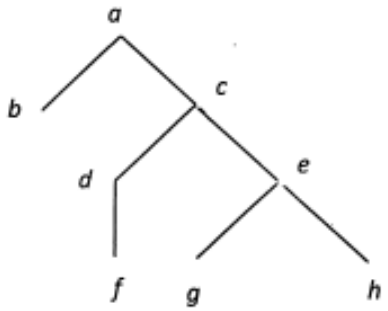
   iv) The number of vertices of odd degree in an undirected graph is even.

   v) The statement “What are you doing ?” is proposition.

P.T.O.

2. Define the terms. **(5×2)**
   i) Conditional Probability
   ii) Tautology
   iii) Bipartite Graph
   iv) Semigroup
   v) Multiplication principle.

3. Attempt **any four** from following. **(4×5)**
   i) Determine whether the following compound proposition is tautology of contradiction using truth table : $\sim (q \rightarrow r) \wedge r \wedge (p \rightarrow q)$.
   ii) Consider the following rooted tree



   a) What is the root of tree ?
   b) Find the leaves.
   c) Find the internal vertices.
   d) Find the children of c and e.
   e) Find the descendents of the vertices a and c.

   iii) 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

iv) Show that $(t \wedge s)$ can be derived from the premises $p \rightarrow q, q \rightarrow \sim r, r, p \vee (t \wedge s)$.

v) Obtain Disjunctive normal form of $p \vee (\sim p \rightarrow (q \vee (q \rightarrow \sim r)))$.

vi) Find the number of possible ways in which the letters of the word COTTON can be arranged so that the two Ts don't come together.

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

i) From a club consisting of 6 men and 7 women, in how many ways can we select a committee of

a) 3 men and 4 women

b) 4 persons which has at least one woman

c) 4 persons that has at most one man

d) 4 persons that has persons of both sexes

e) 4 persons so that two specific members are not included.

ii) Let Z be the set of integers, show that the operation $*$ on Z, defined by $a * b = a + b + 1$ for all $a, b \in Z$ satisfies the closure property, associative law and the commutative law. Find the identify element. What is the inverse of an integer a ?

iii) Find the code words generated by the parity check matrix.

When the encoding function is $e : B^3 \rightarrow B^6$.

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

5. 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}. **(1×10)**

SLR-GK – 8

Seat No.	

M.C.A. (Part – I) (Semester – II) Examination, 2014
COMPUTER SCIENCE
Numerical Techniques

Day and Date : Tuesday, 29-4-2014 Total Marks : 70

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

Instructions *: i) Question Nos.* ***1*** *and* ***2*** *are* ***compulsory****.*
ii) Attempt ***any three*** *questions from Q. No.* ***3*** *to Q. No.* ***7****.*
iii) Figures to the right indicate ***full*** *marks.*
iv) ***Use*** *of simple or scientific calculator is* ***allowed****.*

1. A) Select most correct alternative : **10**

i) The order of errors the Simpson's rule for numerical integration with a step size h is

a) h^2 b) h c) h^3 d) h^4

ii) We wish to solve $x^2 - 2 = 0$ by Newton-Raphson technique. If initial guess is $x_0 = 1.0$ subsequent estimate of x(i.e.x_1) will be

a) 1.414 b) 1.5 c) 2.0 d) 1.999

iii) In Guass elimination method for solving a system of linear algebraic equations triangulization leads to

a) Diagonal matrix b) Lower triangular matrix

c) Upper triangular matrix d) Singular matrix

iv) The convergence of which of following method is sensitive to starting value ?

a) False position b) Guass-Siedel method

c) Newton-Raphson method d) All of these

P.T.O.

v) Runge-Kutta method used for _____

a) Ordinary differential equations

b) Root finding

c) Integration

d) None of these

vi) Errors may occurs in performing numerical computation on the computer due to

a) Rounding error b) Power fluctuation

c) Operator fatigue d) All of these

vii) Which of the following statement applies to the bisection method used for finding roots of functions ?

a) Converges within a few iterations

b) Guaranteed to work for all continuous functions

c) It is faster than Newton-Raphson method

d) None of the above

viii) The system of equations $2x + 4y = 10$, $5x + 10y = 25$ has

a) No unique solution b) Only one solution

c) Only two solution d) Infinite solutions

ix) The convergence in modified Euler's method is _____ than that of Euler's method.

a) Slower b) Compatible

c) Faster d) One time more

x) A differential equation together with the initial condition is called

a) Initial value

b) Initial value problem

c) Problem

d) Conditioned problem

B) Fill in the blanks : **4**

i) In simplex method the constraints are expressed by a set of linear inequalities. These inequalities are converted into equalities by adding arbitrary variables called _____

ii) Guass-Jacobi's method is a _____ method.

iii) Convergence in the Guass-Siedel method is _____ as fast as Guass-Jacobi's method.

iv) Process of estimating the value of dependent variable at an intermediate value is called _____

2. A) Write short notes on : **8**

i) Linear Programming Problem

ii) Bisection method.

B) Solve following equations by using Cramer's rule. **6**

$x + y + z = 6$

$2x - y + z = 3$

$x + 2y - z = 2$

3. A) Explain Milne's method. **7**

B) Find the value of f(8) given that f(6) = 1.556, f(7) = 1.690, f(9) = 1.908, f(12) = 2.158. Using Lagrange's formula. **7**

4. A) Explain Newton's backward interpolation method. **7**

B) Using simplex method to solve the following L.P.P. **7**

Maximize $Z = 4x + 5y$ subject to

$2x + 3y \leq 12$

$2x + y \leq 8$

$x \geq 0, y \geq 0.$

5. A) Using bisection method finds the root of $x^3 - 4x - 9 = 0$ perform 6 iterations. **7**

   B) Obtain the approximate root of $x^3 - 4x + 1 = 0$ by Regula-Falsi method, correct upto 4 places of decimal. **7**

6. A) Solve the following equations by Guass-Elimination method : **7**

   $x + y + z = 1$

   $3x + y - 3z = 5$

   $x - 2y - 5z = 10$

   B) Give $\frac{dy}{dx} = x + y$, $y(1) = 0$ obtain Taylor's series for $y(x)$ with $h = 0.1$. Hence estimate $y(1.1)$ correct to four places of decimal. **7**

7. A) Evaluate $\int_0^6 \frac{dx}{1+x^2}$ by using Trapezoidal rule and Simpson's $\frac{3^{th}}{8}$ rule. **7**

   B) Explain the Euler's method. **7**

SLR-GK – 1

Seat No.	

M.C.A. – I (Semester – I) Examination, 2014
COMPUTER SCIENCE
Introduction to Computers

Day and Date : Wednesday, 23-4-2014 Max. Marks : 70
Time : 11.00 a.m. to 2.00 p.m.

N. B. : *1) Question No. **1** and **2** are **compulsory**.*
*2) Attempt **any 3** questions from Q. No. **3** to Q. No. **7**.*
*3) Figures to the **right** indicate **full** marks.*

1. A) Choose correct alternatives : **10**

1) _____ Linux command is used to send a message to every terminal in a network.
   a) Mesg b) Msg
   c) Wall d) Either a) or b)

2) A disadvantage of laser printer is _____
   a) It is quiter than an impact printer
   b) It is very slow
   c) The output is of a lower quality
   d) None of the above

3) A digital computer did not score over an analog computer in terms of _____
   a) speed b) accuracy
   c) cost d) memory

4) Which of the following is true ?
   a) Fields are composed of bytes
   b) Records are composed of fields
   c) Fields are composed of characters
   d) All of the above

5) Artificial intelligence is associated with which generation ?
   a) First generation b) Second generation
   c) Fifth generation d) Sixth generation

P.T.O.

6) The computer that process both analog and digital is called _____
   a) Analog computer b) Digital computer
   c) Hybrid computer d) Mainframe computer

7) Latency time is _____
   a) Time to spin the needed data under head
   b) Time to spin the needed data under track
   c) Time to spin data under sector
   d) All of the above

8) Fifth generation computer is also known as _____
   a) Knowledge information processing system
   b) Very Large Scale Integration (VLSI)
   c) Both of the above
   d) None of the above

9) Storage capacity of magnetic disk depends on _____
   a) tracks per inch of surface b) bits per inch of tracks
   c) disk pack in disk surface d) all of above

10) The _____ directory in linux operating system contains the system configuration files and initialization scripts.
   a) /etc b) /proc
   c) /mnt d) none of above

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

1) / sbin directory contains files that contains commands such as shutdown the system, set the system clock etc.
2) Compiler is one of the best example of application software.
3) SNOBOL stands for string oriented symbolic language. It is used for non-numeric applicat^{n}.
4) A proper definition of a modern digital computer is – A machine that works on binary code.

2. A) Write short notes on the following : **8**
   i) Compiler
   ii) Client-server computing environment.

B) Answer the following : **6**
   i) What is ASCII ? Explain.
   ii) Explain structure of MS-word document.

3. Answer the following : **14**

   A) Explain various dos-commands in detail.

   B) What is machine language ? Explain its advantages and limitations.

4. Answer the following : **14**

   A) Explain various output devices in detail.

   B) Convert $(110011.010)_2$ into decimal and hexadecimal numbers.

5. Answer the following : **14**

   A) Explain difference between personal computer and mainframe system.

   B) What is spread sheet ? Explain its features in detail.

6. Answer the following : **14**

   A) Explain basic components of computer system.

   B) Explain following linux commands :

      1) mesg
      2) chmod
      3) talk.

7. Answer the following : **14**

   A) Difference between LAN and WAN.

   B) What is a linker ? Why it is required ?

SLR-GK – 10

Seat No.	

M.C.A. (Semester – II) (Computer Science) Examination, 2014
MANAGEMENT – II

Day and Date : Monday, 5-5-2014 Max. Marks : 70
Time : 11.00 a.m. to 2.00 p.m.

***Instructions** : 1) Question No. **1** and **2** are **compulsory**.*
*2) Attempt **any 3** questions from Q. No. **3** to Q. No. **7**.*
*3) Figures to **right** indicate **full** marks.*

1. A) Choose the correct alternative : **10**

1) Budget is blue print of _____
   a) Project plan of action for a definite period
   b) Executed plan of last year
   c) Plan for current situations
   d) Plan for last year performance

2) _____ represents the items related to day by day working or manufacturing expenses and income.
   a) Financing b) Investing
   c) Operating d) Both a) and b)

3) The risk return trade-off tells us that the higher risk gives us the possibility of _____ returns.
   a) Higher b) Negative
   c) Lower d) Sure

4) Working capital _____ of current assets over current liabilities.
   a) Is equal
   b) Is lesser
   c) Is an excess
   d) Option a) or b)

P.T.O.

5) In funds flow statement, purchases of land and building means _____
   a) Sources of fund
   b) Increase in working capital
   c) Application of funds
   d) Forecasting of funds

6) Increase in current liabilities means
   a) Decrease in fixed assets
   b) Increase in fixed assets
   c) Decrease in working capital
   d) Increase in working capital

7) _____ ratio shows the proportions of debts and equity in financing the firms assets.
   a) Liquidity
   b) Profitability
   c) Activity
   d) Leverage

8) SWOT is an acronym for _____
   a) Straight, Weak, Opportunity and Threats
   b) Short, Wide, Opposite and True
   c) Strength, Weakness, Opportunity and Threats
   d) Strengths, Weakness, Opportunities and Traits

9) The term goal signifies the general statement of direction in line with the _____
   a) Vision
   b) Mission
   c) Objectives
   d) Strategy

10) Management by objectives was first popularized by _____
   a) Henry Fayol
   b) Peter Drucker
   c) Devid McCleland
   d) Everett Hagen

B) State the following statements are **true** or **false** : **4**

1) Analysis of financial statements is a systematic process of the critical examination the financial information.

2) Ratio analysis does not help to make inter-firm comparison.

3) Strategic management analyzes the major initiatives taken by a company's top management on behalf of consumers.

4) Management by objectives process helps the employees to understand their duties at the workplace.

2. A) Write short note on the following : **8**

a) Inventory

b) Accounts receivables.

B) Answer the following : **6**

a) SWOT analysis

b) Define goals.

3. Answer the following : **14**

A) Explain importance of ratio analysis ? Define its utility.

B) Define strategic planning. Explain strategic planning process.

4. Answer the following : **14**

A) From the following information calculate Material cost and material mix variance.

Materials	Standard	Actual
Material A	100 units @ Rs. 5	90 units @ Rs. 6
Material B	50 units @ Rs. 10	60 units @ Rs. 8
Total	**150**	**150**

B) Explain the difference between budget and budgetary control.

5. Answer the following : **14**

A) What is operating cycle ?

B) From the following particulars prepare funds flow statement for the year ended 31st December 2011.

Particulars	Amount
a) Net profit before writing off goodwill	21,500
b) Depreciation written off on fixed assets	3,500
c) Goodwill written off from profit	5,000
d) Dividend paid	7,000
e) Share issued for cash	10,000
f) Purchase of machinery	20,000
g) Increase in working capital	8,000

6. Answer the following : **14**

A) Explain responsibility center in detail.

B) From the following information prepare production budget for the month of Dec. 2010.

Product	Estimated Stock On 1st Nov.	Estimated Stock On 30th Nov.	Estimated Sales As per budget
A	1,000	1,000	12,000
B	1,000	2,000	13,000

7. Answer the following : **14**

A) Define management report, why it is important in business ?

B) Define working capital management.

SLR-GK – 11

Seat No.	

M.C.A. (Semester – III) Examination, 2014
COMPUTER SCIENCE
Computer Communication Network

Day and Date : Wednesday, 23-4-2014 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

***Note** : i) Question No. **1** and **2** are **compulsory**.*
*ii) Attempt **any 3** questions from Q. No. **3** to Q. No. **7**.*

1. A) Choose correct answers : **10**

i) In CRC there is no error if the remainder at the receiver is _____

A) equal to the remainder at the sender

B) zero

C) non zero

D) the quotient at the sender

ii) How many maximum number of hosts can be attached to each of the local area networks at a site ?

A) 128 B) 254 C) 256 D) 64

iii) Which of the following is a disadvantage of wireless LAN ?

A) slower data transmission

B) higher error rate

C) interference of transmissions from different computers

D) All of the above

iv) The Internet offers different services. Which one listed below is incorrect ?

A) Chat room B) Electronic mail

C) Off line shopping D) World Wide Web

P.T.O.

v) The Internet is _____

A) A global network of computers networks

B) A government-owned agency that links computers

C) Software for sending e-mail around the world

D) A specialised form of local area network.

vi) The Internet Control Message Protocol (ICMP)

A) allows gateways to send error a control messages to other gateways or hosts

B) provides communication between the Internet Protocol Software on one machine and the Internet Protocol Software on another

C) only reports error conditions to the original source, the source must relate errors to individual application programs and take action to correct the problem

D) All of the above

vii) Contention is

A) one or more conductors that serve as a common connection for a related group of devices

B) a continuous frequency capable of being modulated or impressed with a second signal

C) the condition when two or more stations attempt to use the same channel at the same time

D) a collection of interconnected functional units that provides a data communications service among stations attached to the network

viii) Which of the following TCP/IP protocol is used for transferring electronic mail messages from one machine to another ?

A) FTP B) SNMP C) SMTP D) RPC

ix) The slowest transmission speeds are those of

A) twisted-pair wire B) coaxial cable

C) fiber-optic cable D) microwaves

x) Distributed Queue Dual Bus is a standard for

A) LAN B) MAN

C) Wireless LAN D) LAN and MAN

B) Fill in the blanks : **4**

i) If the ASCII character G is sent and the character D is received, then the type of error is _____

ii) TCP is _____ and reliable.

iii) Each packet is routed independently in _____ subnet.

iv) _____ layer of OSI determines the interface of the system with the user.

2. Write short notes on :

A) Public key algorithm **8**

B) Static web Document. **6**

3. A) Explain in brief TCP connection management and its transmission policy. **7**

B) Explain in brief the architecture of WWW. **7**

4. A) What is Substitution Ciphers ? Explain with an example. **7**

B) Explain in AES. **7**

5. A) Discuss in brief the Message Digest. **7**

B) Explain the working of Digital signature. **7**

6. A) What is Congestion Control ? State its general principles. **7**

B) Discuss optimality principle with shortest path routing. **7**

7. A) What are transport service primitives ? Discuss its protocol elements. **7**

B) Explain the architecture and services of application layer. **7**

_____

SLR-GK – 12

Seat No.	

M.C.A. – II (Semester – III) (Computer Science) Examination, 2014
JAVA PROGRAMMING

Day and Date : Friday, 25-4-2014 Total Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions *: 1) Question No.* ***1*** *and* ***2*** *are* ***compulsory****.*
2) Attempt ***any 3*** *questions from Q. No.* ***3*** *to Q. No.* ***7****.*
3) Figures to the ***right*** *indicate* ***full*** *marks.*

1. A) Choose correct alternatives : **10**

1) Consider the following program.

```
public class Test
{
        public static void main(String[ ] args)
        {
                int wer;
                System.out.println("The value of wer is : " + wer);
        }
}
```

Choose the correct statement.

a) This program will not compile successfully because the local variable wer is used without being assigned a value
b) The value of wer that is printed is an unpredictable garbage value
c) The value of wer that is printed is 0
d) The value of wer that is printed is compiler dependent

2) The finally block is executed

a) Only when a checked exception is thrown
b) Only when an unchecked exception is thrown
c) Only when an exception is thrown
d) Irrespective of whether an exception is thrown or not

P.T.O.

3) The statements

```
double whatIsThis = –1.0/0.0;
System.out.println(whatIsThis);
```

a) Results in compilation error
b) Results in overflow error
c) Prints-Infinity
d) Prints a garbage value

4) Math.ceil(x) has the same value as

a) –Math.floor(–x)
b) –Math.ceil(–x)
c) –Math.floor(x)
d) –Math.ceil(x)

5) How many #'s do the following statements print ?

```
for(int m = 0, n = 10; n – m > 5; ++m, --n)
        System.out.print("#");
```

a) 0 b) 1 c) 3 d) None of these

6) What is the range of data type byte in Java ?

a) –128 to 127
b) –32768 to 32767
c) –2147483648 to 2147483647
d) None of the mentioned

7) Which of these events is generated when a button is pressed ?

a) ActionEvent
b) KeyEvent
c) WindowEvent
d) AdjustmentEvent

8) Which of these events will be notified if scroll bar is manipulated ?

a) ActionEvent
b) ComponentEvent
c) AdjustmentEvent
d) WindowEvent

9) What will happen if two thread of same priority are called to be processed simultaneously ?

a) Any one will be executed first lexographically
b) Both of them will be executed simultaneously
c) None of them will be executed
d) It is dependent on the operating system

10) Which of these keywords is used to refer to member of base class from a sub class ?

a) Upper
b) Super
c) This
d) None of the mentioned

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

1) Public members of class can be accessed by any code in the program.

2) Array size can be negative.

3) AdjustmentEvent is generated when a scroll bar is manipulated.

4) Memory is allocated to an object using '*new*' operator.

2. A) Write short notes on the following : **8**

i) Abstract class

ii) Access modifiers.

B) Answer the following : **6**

i) What are the benefits of organizing classes into packages ?

ii) What do you mean by scope of variables ? What is the difference between instance variables and class variables ?

3. Answer the following : **14**

A) What are different features of Java ?

B) Describe various types of iterations statements in Java.

4. Answer the following : **14**

A) Describe how applet works.

B) Write a program to create an applet (as shown in the figure) containing two checkboxes and one textfield and displaying the appropriate message in the textfield after clicking on the checkbox.

5. Answer the following : **14**

   A) Write a program to print the following format.

   9

   7 7

   5 5 5

   3 3 3 3

   1 1 1 1 1

   B) Explain character stream classes.

6. Answer the following : **14**

   A) Explain how a thread is created. Describe life cycle of a thread.

   B) Describe exception handling in Java.

7. Answer the following : **14**

   A) What are the steps to connect to database using JDBC ?

   B) What is the use of Layout ? Explain border layout and grid layout.

SLR-GK – 13

Seat No.	

M.C.A. – II (Semester – III) (Computer Science) Examination, 2014
SOFTWARE ENGINEERING

Day and Date : Monday, 28-4-2014 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions *: 1) Question No.* ***1*** *and* ***2*** *are* ***compulsory****.*
2) Attempt ***any 3*** *questions from Q. No.* ***3*** *to Q. No.* ***7****.*
3) Figures to the ***right*** *indicate* ***full*** *marks.*

1. A) Choose the correct alternatives : **10**

1) White-box testing is also called as _____ testing.

a) Behavioral testing

b) Sensitivity testing

c) Glass-box testing

d) Configuration testing

2) An objects encapsulates _____

a) Data b) Behavior

c) State d) Both data and behavior

3) A metric used to measure the characteristics of the methods techniques and tools employed in developing, implanting and maintaining the software system called as _____

a) Process metric b) Product metric

c) Test metric d) Project metric

4) Software design is an interactive process through which requirements are translated into a _____ for constructing the software.

a) Blueprint b) Handprint

c) Yellow print d) None of these

5) Which of the following items represents the requirements types that consist of statements of the services that the system should provide and the constraints of the system ?
   a) System requirements
   b) User requirements
   c) Software design specification
   d) Domain requirements

6) Which development techniques emphasize delivery speed rather than other characteristics such as performance, maintainability or reliability ?
   a) Dynamic prototyping techniques
   b) Interactive prototyping techniques
   c) Fast prototyping techniques
   d) Rapid prototyping techniques

7) Which requirement engineering process activity uses prototypes to check for errors and omissions in users requirements ?
   a) Requirement elicitation b) Requirement gathering
   c) Requirement validation d) Requirement analysis

8) _____ is not type of myths.
   a) Management myths. b) Customer myths.
   c) Practitioner's myths. d) Developer's myths.

9) What is an engineering discipline concerned with all aspects of S/W production from the early stage of system specification until maintenance ?
   a) Software maintenance b) Software specification
   c) Software engineering d) Software inspector

10) When a single data point has been collected a _____ has been established.
   a) Measurement b) Metrics
   c) Indicator d) Measure

B) Fill in the blanks or **true**/**false** : **4**

1) Black box testing is also known as functional testing.
2) DFD abbreviation stands for Data Flow Diagram.
3) The process dimension indicates the evolution of the design tasks are executed as part of the software process.
4) Condition testing is a test-case design method that exercises the logical conditions contained in a program module.

2. A) Write short notes on the following : **8**
   i) Software characteristics
   ii) Data dictionary.
   B) Answer the following : **6**
   i) List any three advantages of RAD model.
   ii) List any three disadvantages of water fall model.

3. Answer the following : **(7×2=14)**
   A) What is architecture design ? Explain data-centered, data-flow and call and return architectures in brief.
   B) What is analysis modeling ? Explain any three elements of analysis model.

4. Answer the following : **(7×2=14)**
   A) Explain condition testing, data-flow testing and loop testing with example.
   B) Explain procedural design with example.

5. Answer the following : **(7×2=14)**
   A) What is test case ? Explain any six elements present in a good test case design.
   B) Draw context and first level DFD for college admission system.

6. Answer the following : **(7×2=14)**
   A) Explain any seven interface design principles.
   B) What is communication ? Explain any three communication techniques with example.

7. Answer the following : **(7×2=14)**
   A) What is object oriented approach ? Explain object oriented analysis, design and testing in brief.
   B) What is black box testing ? Explain orthogonal array testing and graph based testing methods in brief.

SLR-GK – 14

Seat No.	

M.C.A.– II (Semester – III) Examination, 2014
COMPUTER SCIENCE
Paper : DBMS

Day and Date : Wednesday, 30-4-2014 Total Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

***Instructions** : 1) Question No.**1** and **2** are **compulsory**.*
*2) Attempt **any 3** questions from Q. No. **3** to **7**.*
*3) Figure to **right** indicates **full** marks.*

1. A) Multiple choice questions : **10**

1) A report generator is used to
   A) Update files B) Print files on paper
   C) Data entry D) Delete files

2) The property/properties of a database is/are
   A) It is an integrated collection of logically related records
   B) It consolidates separate files into a common pool of data records
   C) Data stored in a database is independent of the application programs using it
   D) All of the above

3) The DBMS language component which can be embedded in a program is
   A) The Data Definition Language (DDL)
   B) The Data Manipulation Language (DML)
   C) The Database Administrator (DBA)
   D) A query language

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

5) The relational model feature is that there
   A) Is no need for primary key data
   B) Is much more data independence than some other database models
   C) Are explicit relationships among records
   D) Are tables with many dimensions

6) Conceptual design
   A) Is a documentation technique
   B) Needs data volume and processing frequencies to determine the size of the database
   C) Involves modelling independent of the DBMS
   D) Is designing the relational model

7) The method in which records are physically stored in a specified order according to a key field in each record is
   A) Hash B) Direct
   C) Sequential D) All of the above

8) A subschema expresses
   A) The logical view B) The physical view
   C) The external view D) All of the above

9) Count function in SQL returns the number of
   A) Values B) Distinct values
   C) Groups D) Columns

10) Which one of the following statements is false ?
   A) The data dictionary is normally maintained by the database administrator.
   B) Data elements in the database can be modified by changing tha data dictionary.
   C) The data dictionary contains the name and description of each data element.
   D) The data dictionary is a tool used exclusively by the database administrator.

B) **True** or **false** : **4**

1) The final outcome of a natural JOIN yields a table that provides only the copies of the unmatched pairs.
2) To maintain entity integrity, a null value is permitted in the primary key.

3) In a relational table, each row/column intersection represents a single data value.

4) The proper use of foreign keys is crucial to exercising data redundancy control.

2. a) Discuss the characters of a database management system. **8**

   b) Discuss the three scheme architecture of a database management system. **6**

3. a) Explain the concept of generalization and specialization in modeling objects with the help of E-R diagrams. **6**

   b) Explain the following relational algebra operations :

      i) Product

      ii) O – join

      iii) Projection

      iv) Division. **8**

4. a) Explain different JOIN operations of relational algebra with examples. **7**

   b) Explain how key and referential integrity constraints are specified in SQL CREATE TABLE statement. **7**

5. a) Explain the syntax of a CREATE TABLE Statement in SQL. With an examples illustrate how constraints are defined on a table. **7**

   b) Explain the various SQL set operators with examples. **7**

6. a) What is lossless join property of decomposition ? Consider the relation schema and the set of FDS, R = {A, B, C, D, E, F,G, H, I, J}

   F= {AB $\rightarrow$ C,A $\rightarrow$ DE, B $\rightarrow$ F, F $\rightarrow$ GH, D $\rightarrow$ IJ}

   Determine whether the following decomposition has a lossless join property with the respect of FR_1= {A, B, C}, R_2 = {A, D, E}, R_3 = {B, F}, R_4 = {F, G, H}, R_5 = {D ,I, J}. **7**

   b) What are roles ? How roles and privileges are granted and revoked ? **7**

7. a) Explain the possible problems associated with concurrent execution of transactions. **7**

   b) Explain two-phase locking protocol. **7**

SLR-GK – 15

Seat No.	

M.C.A. – II (Semester – III) Examination, 2014
COMPUTER SCIENCE
Computer Oriented Statistics

Day and Date : Saturday, 3-5-2014 Total Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

***Instructions** : 1) Question no. **1** and **2** are **compulsory**.*
*2) Attempt **any three** questions from Q. **3** to Q. **7**.*
*3) Figures to **right** indicate **full** marks.*

1. A) Choose a correct alternative : **10**

1) The correlation between the speed of an automobile and distance travelled by it after applying the brakes is

a) Negative b) Zero
c) Positive d) None of these

2) If the sum of n observations is 540 and their mean 36, then the value of n is

a) 21 b) 30
c) 15 d) 20

3) Which one is an absolute measure of dispersion ?

a) Range b) Mean deviation
c) Standard deviation d) All of above

4) Probability of two mutually exclusive events is always _____

a) zero b) One
c) ∞ d) None of these

5) For _____ distribution mean and variance are equal.

a) Normal b) Binomial
c) Bernoulli d) Poisson

6) If there exist a perfect correlation between two variables then the value of Karl Pearson's coefficient of correlation is _____

a) + 1 b) – 1

c) 0 d) Either + 1 or – 1

7) The normal probability curve is _____

a) Bell shaped b) Symmetric

c) Mesokurtic d) All of the above

8) The mean of binomial distribution is _____

a) Always more than its variance b) Always equal to variance

c) Always less than its variance d) Always equal to standard deviation

9) Arithmetic mean of certain observation is 4, if each observation is increased by 3 then arithmetic mean of series is

a) 3 b) 4

c) 7 d) 5

10) Which measure of central tendency cannot be calculated graphically ?

a) Mean b) Mode

c) Median d) All of above

B) Fill in the blanks : **4**

1) Probability of certain event is always _____

2) The point of intersection of two cumulative frequency curves provides _____

3) Mean of standard normal distribution is always located at _____

4) The sum of deviation taken from mean is always _____

2. A) 1) Explain the concept of negative binomial distribution. **4**

2) Discuss the importance of normal distribution. **4**

B) 1) Suppose coin is tossed five times. Find the probability of getting 3 heads. **3**

2) Explain the concept of relative measures and absolute measures of dispersion. **3**

3. A) Explain the concept of correlation and its types with example. **7**

   B) Calculate mean deviation and coefficient of mean deviation for following distribution. **7**

Class	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60
Frequency	6	5	8	2	21	6

4. A) Explain the concept of measures of dispersion with example. **7**

   B) A survey conducted to determine distance [km] per liter of petrol by moped. Find the coefficient of variance for distribution. **7**

Class	40 – 45	45 – 50	50 – 55	55 – 60	60 – 65
Frequency	13	12	25	35	50

5. A) A discrete random variable X has the following distribution. **7**

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

   Find :

   i) Value of k ii) $P(|x| < 2)$

   B) State and prove the Bayes theorem. **7**

6. A) A bag contains 8 white balls and 12 pink balls. Two balls are drawn one by one without replacement. Find the probability that :

   i) Both are pink

   ii) One of each color. **7**

   B) Explain the generation of random sample from uniform distribution. **7**

7. A) A bag contains 8 white balls and 12 pink balls. Two balls are drawn one by one without replacement. Find the probability that **7**

   1) Both are pink

   2) One of each color.

   B) The incidence of occupational disease in an industry is such that the workmen have a 10% change of suffering from it. What is probability that out of 5 workmen, 3 or more will conduct the disease ? **7**

SLR-GK – 17

Seat No.	

M.C.A. – II (Semester – IV) Examination, 2014
COMPUTER SCIENCE
Visual Programming (Old)

Day and Date : Saturday, 26-4-2014 Total Marks : 75
Time : 3.00 p.m. to 6.00 p.m.

Instruction *: Figures to the* ***right*** *indicate* ***marks*** *to a question or sub question.*

1. A) Choose correct alternatives : **10**

1) In VC++ _____ object represents the application itself.
   a) Window b) Application
   c) View d) Document

2) In VC++ _____ is the instance handle for the running application.
   a) hPrevInstance b) hInstance
   c) lpszCmdLine d) None of these

3) _____ class contains the database connection information.
   a) CDatabase b) CRecordset
   c) Both a) and b) d) None of these

4) In VC++ _____ are used to fill areas and shapes with solid color, a pattern from a bitmap or a hatching scheme.
   a) Pens b) Brushes
   c) Both a) and b) d) None of these

5) UpdateData(true); will
   a) Transfer the contents of the control into the corresponding value variable
   b) Transfer the contents of the value variable into the corresponding control
   c) Both a) and b)
   d) None of these

P.T.O.

6) _____ record sets are not updatetable.
   a) Forward-only-type b) Dynamic-type
   c) Both a) and b) d) None of these

7) In VB 6.0 class module files have the filename extensions _____
   a) .cla b) .cls
   c) either a) or b) d) .bas

8) In VB 6.0 a variable name must begin with a letter and should not exceed _____ characters.
   a) 1 b) 8
   c) 15 d) 255

9) In VB 6.0, the Stretch property of image control determines _____
   a) Whether the image control is sized to fit the picture
   b) Whether the picture is sized to fit the control as drawn
   c) a) or b)
   d) None of these

10) In Visual Basic we work with objects, which have _____
   a) Programmer preference
   b) Projects and procedures
   c) Actions and disciplines
   d) Properties and methods

B) State whether **true** or **false** : **5**

1) The device context can be viewed both as a canvas to paint on and as a toolbox holding pens and brushes.

2) Serialization is an elegant way of storing and loading values to and from a file.

3) It is possible to run more than one copy of the same windows application at the same time.

4) The main objective of COM is reusability.

5) In VB DataEnvironment component helps you to design a connection to a database and retrieve the desired records.

2. Write short notes on (attempt **any 3**) : **15**
   a) Hungarian notation
   b) CPen class
   c) Scrollbar control in VB
   d) Keyboard triggered events.

3. Attempt **any three** : **15**
   a) What are different GDI resources ?
   b) What are different mouse event methods in VC++ ?
   c) Describe different sections of the Data Report Designer.
   d) Why property procedures are required ? What are the different property procedures ?

4. Attempt **any two** : **20**
   a) What are the four major parts of a VC++ AppWizard program ?
   b) Explain different commands and functions in VB that can be used for file handling.
   c) Explain List Box control in VB with example.

5. Describe windows messages and message map. **10**

SLR- GK – 2

Seat No.	

M.C.A. – I (Semester – I) (Computer Science) Examination, 2014
PROCEDURAL PROGRAMMING METHODOLOGY

Day and Date : Friday, 25-4-2014 Total Marks : 70
Time : 11.00 a.m. to 2.00 p.m.

Instructions *: 1) Question No.* ***1*** *and* ***2*** *are* ***compulsory****.*
2) Attempt ***any 3*** *questions from Q. No.* ***3*** *to Q. No.* ***7****.*
3) Figures to the ***right*** *indicate* ***full*** *marks.*

1. A) Choose correct alternatives : **10**

1) Which of the following is not a storage class in C ?

a) Static b) Register

c) Extern d) Stack

2) The following statement is used in C for

char*ptr = (char*) malloc (Length);

a) For faster execution of programs

b) For reducing the code

c) For conservation of memory

d) Both a) and b)

3) What is the output of the program ?

```
#include<stdio.h>
#define sq(a) a*a
void main()
{
  printf("%d", sq(3 + 2));
}
```

a) 25 b) 11

c) 10 d) Compilation error

P.T.O.

4) What is the output of the program ?

```
#include <stdio.h>
#define MAX 20
void main ( )
{
   printf("%d",++MAX));
}
```

a) No error, output is 20
b) No error, output is 21
c) Error : Define directive needs an identifier
d) Error : L value required.

5) What will be the output of the following program ?

```
void main ( ) {
 double x = 28;
  int r;
  r = x%5;
  printf ("\n r = %d", r);}
```

a) r = 3
b) Run time Error
c) Compile time Error
d) None of these

6)
```
Void main ( ) {
int a = 0;
for (; a ;);
     a + + ; }
```

What will be the value of the variable a, on the execution of the above program ?

a) 1
b) 0
c) –1
d) None of these

7) What will be the output ?

```
Void main (  ) {
   printf ("%d", 'B' < 'A');}
```

a) Error
b) 1
c) 0
d) None of these

8) Which of the following symbol is used to denote a pre-processor statement ?

a) ! b) #

c) ~ d) ;

9) A declaration float a, b; occupies _____ bits of memory.

a) 4 b) 8

c) 16 d) 64

10) The operator && is an example for _____ operator.

a) Assignment b) Increment

c) Logical d) Relational

1. B) State whether **true** or **false** : **4**

1) Operators have hierarchy.

2) In case of pseudo code a graphic representation of a program logic is not available.

3) The process of discovering, locating and correcting all errors in a program is called debugging.

4) The top-down development process specifies a solution in terms of group of smaller individual subtask.

2. A) Write short notes on the following : **8**

i) Switch statement

ii) Increment and decrement operator.

2. B) Answer the following : **6**

i) What is pseudo code ? What are its limitations ?

ii) What do you mean by Bottom-up design ?

3. Answer the following : **14**

a) Write a C language program to find out sum of the following series $1! + 2! + 3! + ... + n!$.

b) Explain nested structure and self referential structure with example.

4. Answer the following : **14**

   a) Explain break and continue statements using syntax and example.

   b) Describe pointer with example.

5. Answer the following : **14**

   a) Write a C language program using command line argument to add three numbers.

   b) Describe different constructs of structured programming.

6. Answer the following : **14**

   a) Write the algorithm to search an array of n elements for a item using linear search method.

   b) State and explain any four string functions with example.

7. Answer the following : **14**

   a) Write a C language program to create file “odd” to store all odd numbers between 1 and n.

   b) What are the various types of operators in C ?

SLR-GK – 21

Seat No.	

M.C.A. – II (Semester – IV) Examination, 2014
COMPUTER SCIENCE
Finite Automata (New)

Day and Date : Thursday, 24-4-2014 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

***Instructions** : 1) Question No. **1** and **2** are **compulsory**.*
*2) Attempt **any 3** questions from Q. No. **3** to Q. No. **7**.*
*3) Figures to the **right** indicate **full** marks.*

1. A) Choose correct alternatives : **10**

1) Basic limitations of finite state machine is
   a) It cannot remember arbitrarily large amount of information
   b) It cannot remember state transitions
   c) It cannot remember grammar for a language
   d) It cannot remember language generated from a grammar

2) Can a DFSA simulate a NFSA
   a) No b) Yes
   c) Sometimes d) Depends on NFA

3) A language L from a grammar G = $\{V_N, \Sigma, P, S\}$ is
   a) Set of symbols over V_N b) Set of symbols over Σ
   c) Set of symbols over P d) Set of symbols over S

4) The transitional function of a DFA is
   a) $Q \times \Sigma \rightarrow Q$ b) $Q \times \Sigma \rightarrow 2^Q$
   c) $Q \times \Sigma \rightarrow 2^n$ d) $Q \times \Sigma \rightarrow Q^n$

5) Maximum number of states of a DFA converted from a NFA with n states is
   a) n b) n^2 c) 2^n d) None of these

P.T.O.

6) Consider the following language $L = \{a^n b^n c^n d^n \mid n \geq 1\}$ L is
   a) CFL but not regular
   b) CSL but not CFL
   c) Regular
   d) Type 0 language but not type 1

7) The concept of grammar is much used in this part of the compiler
   a) Lexical analysis
   b) Parser
   c) Code generation
   d) Code optimization

8) Which of the following problem is undecidable ?
   a) Membership problem for CFL
   b) Membership problem for regular sets
   c) Membership problem for CSL
   d) Membership problem for type 0 languages

9) Which one of the following statement is FALSE ?
   a) Context-free languages are closed under union
   b) Context-free languages are closed under concatenation
   c) Context-free languages are closed under intersection
   d) Context-free languages are closed under Kleene closure

10) R_1 and R_2 are regular sets. Which of the following is not true ?
   a) $R_1 \cap R_2$ need not be regular
   b) $\Sigma^* - R_1$ is regular
   c) $R_1 \cup R_2$ is regular
   d) None of these

B) Fill in the blanks : **4**

1) Finite Automata is one type of _____ state machine.

2) In block diagram of finite automata input from input tape is read by

3) Finite control can be considered as a _____ unit of a finite automation.

4) Automata of all kinds define _____

2. A) Write short notes on the following :

   i) Non-deterministic finite automata **4**

   ii) Deterministic Pushdown Automata **4**

   B) Answer the following :

   i) Design the NFA that accepts the language L (aa*(a + b)). **6**

3. Answer the following :

   A) Convert the following NFA to its equivalent DFA using subset reconstruction. **7**

	0	1
→ p	{p ,q }	{p }
Q	{r }	{r }
R	{s }	Φ
* s	{s }	{s }

   B) Convert the regular expression (01 + 1)* to € – NFA. **7**

4. Answer the following :

   A) State and prove the Pumping Lemma for regular languages. **7**

   B) Define regular expression. Write the regular expression for the following languages.

   i) Strings of 0's and '1 s having no two consecutive zeros.

   ii) Strings of 0's and 1's whose lengths are multiples of 3. **7**

5. Answer the following :

   A) Consider the grammar G with productions.

   $S \rightarrow AbB$

   $A \rightarrow aA|€$

   $B \rightarrow aB|bB|€$

   Write leftmost derivation and parse tree for the string aabab. **7**

   B) Prove that language $L = \{a^n b^n | n \geq 1\}$ is not the regular language. **7**

6. Answer the following :

   A) Define PDA. Design PDA to accept the following language by final state L = {w|w€{a, b}*, w has equal number of a's and b's}. **7**

   B) Consider CFG

   $S \rightarrow AA$

   $A \rightarrow AAA|bA|Ab|a$

   Find the parse tree for bbaaaab. **7**

7. Answer the following :

   A) Prove that the context free languages are closed under union and concatenation. **7**

   B) Define Turing machine and explain the general structure of multitape Turing machine. **7**

———————

SLR-GK – 22

Seat No.	

M.C.A. – II (Semester – IV) (Computer Science) Examination, 2014
.NET (New)

Day and Date : Saturday, 26-4-2014 Total Marks : 70

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

Instructions *: I) Question No.* ***1*** *and* ***2*** *are* ***compulsory****.*

II) Attempt ***any three*** *questions from Q. No.* ***3*** *to Q. No.* ***7****.*

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

1. A) Choose the correct alternatives : **10**

i) A class that cannot be inherited is what type of class ?

a) Sealed b) Static c) Gather d) Constructor

ii) A master page is merged with a content page _____ in the page execution life cycle.

a) Very early b) Very late

c) Never d) After execution

iii) Which property will you use to process different server paths in a page ?

a) Request b) Response

c) Server d) Application

iv) Which file contains configuration data for each unique URI resource used in project ?

a) Global.asax b) Assemblyinfo.cs

c) Web.config d) Webapplication.vsdisco

v) Automatic paging is possible in

a) datareader b) dataset c) datatable d) all

P.T.O.

vi) In data reader, what can be used before read method ?

a) Getstring b) Getvalue

c) GetNumber d) None

vii) What object can help you maintain data across users ?

a) Session object b) Application object

c) Server object d) Response object

viii) Default scripting language in ASP

a) EcmaScript b) VBScript

c) PERL d) JavaScript

ix) When does Garbage Collector run ?

a) When application is running low memory

b) It runs random

c) When application is running for more than 15 min.

d) None of the above

x) What is boxing ?

a) Excapsulating an object in a value type.

b) Encapsulating a copy of an object in a value type.

c) Encapsulating a value type in an object

d) Encapsulating a copy of a value in an object

B) Fill in the blanks : **4**

i) _____ is an extension used for ASP.NET files.

ii) Every C# statement ends with _____ character.

iii) ASP.NET is _____ application.

iv) All comparison operators return _____ type values.

2. A) Write a short note on the following : **8**

   i) Describe various c# processor directives.

   ii) What are the master page events ?

   B) Explain .NET meta data. **6**

3. Answer the following : **14**

   A) Explain structure and function of .NET runtime (CLR).

   B) Write a c# program to the row sum and column sum of a given matrix.

4. Answer the following : **14**

   A) What are the differences between ASP and ASP.net applications ?

   B) What are difference between client side validation and server side validation ?

5. Answer the following : **14**

   A) Explain various server controls.

   B) How ASP.net and web application are processed ?

6. Answer the following : **14**

   A) What is master page ? And what are the needs of master page ?

   B) Differentiate between master page and content page.

7. Answer the following : **14**

   A) Write a note on state management and explain any two briefly.

   B) What are the properties of HTTP application state class ?

SLR-GK – 23

Seat No.	

M.C.A. – II (Semester – IV) Examination, 2014
UML : COMPUTER SCIENCE (New)

Day and Date : Tuesday, 29-4-2014 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions** : I) Question No. **1** and **2** are **compulsory.
*II) Attempt **any three** questions from Q. No. **3** to Q. No. **7.***
*III) Figures to the **right** indicate **full** marks.*

1.A) Choose the correct alternatives : **10**

1) _____ are dynamic parts of UML model.
   a) Structural things b) Behavioural things
   c) Grouping things d) Annotational things

2) An _____ is the implementation of a service that can be requested from any class.
   a) Object b) Attribute c) Operations d) Entity

3) _____ is represented by solid directed line with a large open arrowhead, pointing to parent.
   a) Aggregation b) Composition
   c) Association d) Generalization

4) The extension of properties of UML elements is known as_____
   a) Note b) Tagged value
   c) Stereotype d) Constraint

5) Class diagrams are grouped under _____
   a) Structural modeling b) Behavioural modeling
   c) Annotational modeling d) Process modeling

P.T.O.

6) _____ stereotype specifies that the client is the same object as the supplier but at a later time and with possibly different values state, or roles

a) Copy b) Instance Of

c) Become d) Transient

7) An _____ is ongoing non atomic execution within state-machine.

a) Activity b) Entity c) Process d) None of these

8) Transitions that are handled without causing a change in state is known as _____ transitions.

a) External b) Internal c) Static d) Dynamic

9) What can UML interfaces be used for ?

a) To provide concrete classes with stereotypes

b) To program in Java and C++ but not in C#

c) To define one logic that can be reused in several classes

d) To specify required services for types of objects

10) Which of the following is the extensibility mechanism in the UML ?

a) Stereotype b) Tagged value

c) Constraints d) All the above

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

1) Behavioural models are the static parts of UML models.

2) State chart diagram is used to show the time ordering of messages.

3) A package can be instantiated.

4) A fork has many input and single output.

2. A) Write short notes on the following : **8**

i) Things in UML building block

ii) Advanced classes in UML

B) Explain behavioural diagrams in UML. **6**

3. Answer the following : **14**

   1) Explain software development life cycle.

   2) Explain packages in UML.

4. Answer the following : **14**

   1) Explain class diagram in UML

   2) Explain components of the interaction diagram.

5. Answer the following : **14**

   1) Explain different types of objects used in Use Case Diagram

   2) Explain the Fork, Merge, Branch and Join form Activity Diagram in UML.

6. Answer the following : **14**

   1) Explain relationship in UML

   2) Draw use case diagram for credit card validation system

7. Explain the events, signals, process, threads, time and space used in state chart diagram. **14**

SLR-GK – 24

Seat No.	

M.C.A. – II (Semester – IV) Examination, 2014
COMPUTER SCIENCE (New)
Data Mining and Warehouse

Day and Date : Friday, 2-5-2014 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions *: 1) Question No.* ***1*** *and* ***2*** *are* ***compulsory****.*
2) Attempt ***any 3*** *questions from Q. No.* ***3*** *to Q. No.* ***7****.*
3) Figures to the ***right*** *indicate* ***full*** *marks.*

1. A) Choose correct alternatives : **10**

1) The _____ table contains the names of facts, or measures, as well as, keys to each of the related dimension tables.
   a) Dimension b) Fact c) Query d) None of these

2) A _____ allows data to be modeled and viewed in multiple dimensions.
   a) Data cube b) Dimension
   c) Query d) None of these

3) An _____ system manages current data that, typically, are too detailed to be easily used for decision making.
   a) OLAT b) OLAP
   c) OLTP d) None of these

4) The cuboid that holds the lowest level of summarization is called the
   a) Base cuboid b) Apex cuboid
   c) 3-D cuboid d) None of these

5) The snowflake schema is a variant of the _____ schema model, where some dimension tables are normalized, thereby further splitting the data into additional tables.
   a) Fact constellations b) Snowflake
   c) Star d) None of these

P.T.O.

6) The roll-up operation is also called the _____
   a) Drill-down b) Drill-up
   c) Drilling d) None of these

7) A _____ warehouse is a set of views over operational databases.
   a) Virtual b) Data mart
   c) Enterprise d) None of these

8) _____ which detects errors in the data and rectifies them when possible.
   a) Data cleaning b) Data extraction
   c) Data transformation d) Load

9) _____, which typically gathers data from multiple, heterogeneous, and external sources.
   a) Data cleaning b) Data extraction
   c) Data transformation d) Load

10) A _____ is a flowchart-like structure.
   a) Condition tree b) Data extraction
   c) Root tree d) Decision tree

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

i) An OLAP system is custom-oriented and is used for transaction and query processing by clerks, clients, and information technology professionals.

ii) The snowflake schema is a variant of the star schema model.

iii) Drill-down is the reverse of roll-up.

iv) An OLTP system is usually adopts an Entity-Relationship (ER) data model and an-application oriented database design.

2. A) Write a short note on following : **8**
   i) Data marts
   ii) Outlier analysis.

B) Attempt following questions : **6**
   i) Explain data warehouse back end tools and utilities.
   ii) Explain data transformation.

3. Answer the following : **14**
   A) What is data warehouse ? Explain the difference between OLTP and OLAP.
   B) Explain star schema and snowflake schema model with example.

4. Answer the following : **14**
   A) Explain OLAP operations in the multidimensional data model.
   B) Describe data mining primitives.

5. Answer the following : **14**
   A) Explain the steps for Back propagation algorithm.
   B) Explain different applications of data mining.

6. Answer the following : **14**
   A) What is cluster analysis ? Explain types of data in cluster analysis.
   B) Explain in detail decision tree induction method.

7. Attempt the following : **14**
   A) Explain the procedure for K-medoids method.
   B) What is association rule ? Explain mining single-dimensional Boolean.

SLR- GK – 25

Seat No.	

M.C.A. (Semester – IV) Examination, 2014
COMPUTER SCIENCE
Distributed Operating Systems (New)

Day and Date : Monday, 5-5-2014 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions *: 1) Question No.* ***1*** *and* ***2*** *are* ***compulsory****.*
2) Attempt ***any 3*** *questions from Q. No.* ***3*** *to Q. No.* ***7****.*
3) Figures to the ***right*** *indicate* ***full*** *marks.*

1. A) Choose correct alternatives : **10**

i) Which of the following memory allocation scheme suffers from external fragmentation ?

a) Segmentation b) Pure demand paging

c) Swapping d) Paging

ii) Which of the following is not a distributed model ?

a) Minicomputer model b) Workstation model

c) Processor pool model d) None of the above

iii) Paging _____.

a) Solves the memory fragmentation problem

b) Allows modular programming

c) Allows structured programming

d) Avoids deadlock

iv) Migration transparency is

a) When object is migrated from one node to another in a distributed system

b) It is opposite application transparency

c) Masking of an object from being linked

d) None of the above

P.T.O.

v) A thread is a _____ process.

a) Heavy weight b) Multiprocess

c) Inter thread d) Light weight

vi) Distributed OS works on the _____ principle.

a) File foundation b) Single system image

c) Multi system image d) Networking image

vii) Inter process communication can be done through _____

a) Mails b) Messages

c) System calls d) Traps

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

a) Safe b) Unsafe

c) Starvation d) Dead lock

ix) In which state transactions executive the final statement ?

a) Committed b) Abort

c) Active d) Partially committed

x) _____ page replacement algorithm suffers from Belady's anamoly.

a) LRU b) MRU

c) FIFO d) LIFOs

B) Fill in the blanks or tick **true**/**false** : **4**

i) IPC stands for _____

ii) The size of a quorum is always bigger or equal to the size of a majority set. True/False.

iii) Leader election can be solved with a Consensus algorithm. True/False

iv) If an algorithm is f-resilient, it must consist of at least 2f + 1 Synchronous Rounds. True/False

2. A) Write short notes on the following :
   i) Transparency as design issue. **4**
   ii) Group communication. **4**
   B) i) Define distributed operating system. **3**
   ii) Explain processes and threads. **3**

3. A) With a neat diagram, explain the role of an operating system. **7**
   B) Explain the concept of virtual memory. **7**

4. A) What are physical and logical clocks ? Explain Lamport's algorithm for synchronizing logical clocks, with an illustrative example. **7**
   B) Explain hybrid model in distributed system. **7**

5. A) What is RPC ? Explain its protocol and working. **7**
   B) List and explain distributed deadlock detection algorithms. **7**

6. A) What do you mean by distributed file system ? Explain its design and implementation. **7**
   B) Discuss transaction services and concurrency control. **7**

7. A) Enumerate and explain various Windows NT server compatibilities. **7**
   B) Discuss processor allocation concept in distributed systems. **7**

SLR-GK – 27

Seat No.	

M.C.A. – III (Semester – V) Examination, 2014
COMPUTER SCIENCE (Old)
.NET

Day and Date : Friday, 25-4-2014 Total Marks : 75
Time : 11.00 a.m. to 2.00 p.m.

Instruction *: Figures to the* ***right*** *indicate marks to a question or subquestion.*

1. A) Choose correct alternatives : **10**

   1) Visual Studio .NET provides which feature
      a) Debugging b) Application deployment
      c) Syntax checking d) All of the above

   2) Which type of project can a developer choose in the New Project dialog box ?
      a) Visual Basic Projects b) Visual C# Projects
      c) Visual C++ Projects d) All of the above

   3) Anything in VB.NET that has a property or method is
      a) a class b) a control
      c) an object d) both a) and b)

   4) Which is not a property of the Common control class ?
      a) Show b) BackColor c) Font d) ForeColor

   5) Which property determines whether a control is displayed to the user ?
      a) Hide b) Show c) Visible d) Enabled

   6) The button control can be activated
      a) Programmatically through the click event
      b) By clicking the button with the mouse
      c) With the form's DefaultButton property
      d) Both a) and b)

   7) Which server-side technique is available in ASP.NET ?
      a) Application states b) Session states
      c) Database support d) Both a) and b)

8) Which is a valid statement for declaring a variable ?
   a) Const Form As Integer b) Const myForm As Integer
   c) Dim myForm As Integer d) Dim Form As Integer
9) Which method of a ListBox will remove just one item at a time ?
   a) Items.RemoveAt b) Item.RemoveAt
   c) Items.ClearAt d) Item.ClearAt
10) Which database is the ADO.NET SqlConnection object designed for ?
   a) Access b) Microsoft SQL Server
   c) MySQL d) Oracle

B) State whether **true**/**false** : **5**

1) BindingContext object contains the position property of the current record in a dataset.
2) Database table specify the DataMember Property.
3) .aspx.vb is the extension for a Visual Basic web form code file.
4) A session variable is created every time a client requests a URL resource.
5) Objects combine actions and data.

2. Write short notes on (attempt **any 3**) : **15**
   a) Boxing and unboxing
   b) Indexers
   c) CTS
   d) Namespace.

3. Answer the following (attempt **any 3**) : **15**
   a) Explain Visual Inheritance.
   b) Explain managed code in brief.
   c) Explain delegates in brief.
   d) What is difference between abstract classes and interfaces ?

4. Answer the following (attempt **any 2**) : **20**
   a) Describe different accessibility modifiers in c#.
   b) Explain the ADO.Net architecture.
   c) What are form methods in VB.Net that control its lifecycle ?

5. Draw appropriate diagram and discuss the various components of the .Net framework. **10**

SLR-GK – 3

Seat No.	

M.C.A. – I (Sem. – I) (Computer Science) Examination, 2014
DISCRETE MATHEMATICAL STRUCTURES

Day and Date : Monday, 28-4-2014 Max. Marks : 70

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

Instructions *: 1) Question No.* ***1*** *and* ***2*** *are* ***compulsory****.*

2) Attempt ***any 3*** *questions from Q. No.* ***3*** *to Q. No.* ***7****.*

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

1. A) Choose the most correct alternative. **10**

1) How many four digit numbers can be formed with the digits 1, 2, 3, 4 with repetition allowed ?

a) 256 b) 216 c) 64 d) 224

2) The recurrence relation with initial conditions determine a _____

a) sequence equally

b) sequence in multiple ways

c) sequence uniquely

d) all of the above

3) $P \rightarrow Q \Longleftrightarrow$ _____

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

c) both a) and b) d) only a)

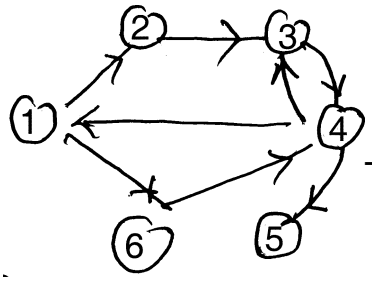
4) $A(y) \Rightarrow (\exists x)\, A(x)$ is known as _____ rule.

a) ES b) EG c) US d) UG

5) If A = {a, b} and B = {4, 5, 6}. The element which doesnot belong to $A \times B$ is _____

a) (a, 6) b) (a, 4) c) (4, b) d) (b, 4)

P.T.O.

6) 

The length of path from vertex 1 to vertex 1 is

a) 3 b) 4 c) 5 d) all of the above

7) If $n(A) = 20$ $n(A \cup B) = 45$, $n(A \cap B) = 5$ $\therefore$ $n(B - A) =$

a) 20 b) 25 c) 40 d) 30

8) Let D_{12} denotes set of positive dividers of 12. The maximal element of this Hasse diagram is _____

a) 1 b) 2 c) 6 d) 12

9) The binary operation of subtraction on Z is

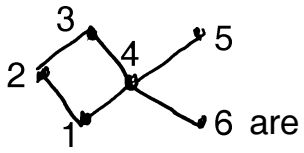
a) commutative and associative

b) commutative but not associative

c) associative but not commutative

d) neither commutative nor associative

10) The maximal and minimal elements of the poset



are

a) Maximal 5, 6; minimal 2

b) Maximal 5, 6; minimal 1

c) Maximal 3, 5; minimal 1, 6

d) None of the above

B) Say **true** or **false**. **4**

1) $P \rightarrow Q, Q \rightarrow R \ \therefore P \rightarrow R$ is known as Modus ponens.

2) A bijection is one-to-one and onto function.

3) A non-empty set with binary composition is called groupoid.

4) If $n_{c_2} = 10$ then $n = 5$ or $n = -4$.

2. a) Define the principle of inclusion and exclusion. In a survey of 60 people it is found that 25 like driving car, 26 like driving cycle and 26 like driving bike. Also 9 people like both driving car and bike, 11 people like car and cycle, 8 like driving cycle and bike. 8 people like none of the three. Using Venn diagram, find. **6**

a) Number of people who like driving all the three vehicles

b) Number of people who like exactly one of the 3 vehicles.

b) Solve the difference equation **8**

$a_n = 10\, a_{n-1} - 9a_{n-2}$, $a_0 = 3$, $a_1 = 11$.

3. a) Define the terms : **8**

i) Poset

ii) Lattice

iii) Draw Hasse-diagram of D_{24} and D_9 lattices.

b) i) Determine the number of 6 digit decimal numbers that contain no repeated digits and doesnot have leading zero. **6**

ii) What is an algebraic system group ? Illustrate with an example.

4. a) Explain the algorithm Quick-sort with an example. Write the algorithm. **8**

b) Show that following using rule C.P.; if necessary **6**
$P \rightarrow (Q \rightarrow R), Q \rightarrow (R \rightarrow S) \Rightarrow P \rightarrow (Q \rightarrow S)$

5. a) Demonstrate the following implication **6**

$\neg((\forall x)\, P(x) \wedge Q(a)) \Rightarrow (\exists x)\, P(x) \rightarrow \neg Q(a)$

b) Illustrate with an example : **8**

i) reflexive

ii) antisymmetric

iii) symmetric and

iv) transitive relation.

6. a) Let A = {1, 2, 3, 4}, R and S be the relations on A described by **8**

$$M_R = \begin{bmatrix} 0 & 0 & 0 & 1 \\ 0 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix} ; M_S = \begin{bmatrix} 1 & 1 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 1 & 0 & 1 \end{bmatrix}$$

Use Warshall's algorithm to compute the transitive closure of relation RUS.

b) Solve the recurrence relation **6**

$a_n = -2a_{n-1} + 2a_{n-2} + 4a_{n-3}$; $a_1 = 0$, $a_2 = 2$, $a_3 = 8$.

7. a) Let G be a group with identity e. Show that if $a^2 = e$ for all a in G_1 then G is abelian. **8**

b) In how many ways a foot-ball team of 11 players can be selected from 15 players ? How many of these will be **6**

1) when one particular player is to be included

2) excluding one particular player.

SLR-GK – 33

Seat No.	

M.C.A. (Sem. – V) Examination, 2014
COMPUTER SCIENCE
Artificial Intelligence (New)

Day and Date : Wednesday, 23-4-2014 Max. Marks : 70
Time : 11.00 a.m. to 2.00 p.m.

***Instructions** : 1) Question No. **1** and **2** are **compulsory**.*
*2) Attempt **any 3** questions from Q. No. **3** to Q. No. **7**.*
*3) Figures to the **right** indicate **full** marks .*

1. A) Choose correct alternatives : **10**

1) Which one is not an expert task ?
   a) Engineering b) Scientific Analysis
   c) Games d) Financial Analysis

2) Production system consists of
   a) A set of Rules b) One or more knowledge/databases
   c) A rule applier d) All the above

3) What is the term used for describing the judgmental or commonsense part of problem solving ?
   a) Heuristic b) Critical
   c) Value based d) Analytical

4) In predicate logic, we can represent real-world facts as statements written as
   a) Aff's b) Wff's
   c) Cff's d) All the above

5) Reference markers are used in
   a) Syntactic Analysis b) Code optimization
   c) Both a) and b) d) None of the above

6) Different ways of handling sentences such as
   a) Allpaths b) Best path with Backtracking
   c) Best path with patchup d) All of the above

7) A frame is a collection of
   a) Slots and associated values
   b) Attributes and associated values
   c) Both a) and b)
   d) None of the above

8) Symbols that correspond directly to strings that must be found in an input sentence are called as
   a) Pre symbols b) Post symbols
   c) Terminal symbols d) All of the above

9) A minimax search procedure is
   a) Depth-first b) Depth-limited
   c) Both a) and b) d) None of the above

10) Script is a structure that describes
   a) Stereotyped sequence
   b) Monotype sequence
   c) Both a) and b)
   d) None of the above

B) Fill in the blanks or **True** / **False** : **4**

1) A _____ function is a function that maps from problem state descriptions to measure desirability, represented as numbers.

2) _____ Algorithm is used to find a minimal-cost overall path.

3) _____ are natural way to represent relationships that would appear as ground instances of binary predicate logic.

4) _____ was the first program to support explanation and knowledge acquisition.

2. A) Write short notes on the following : **8**

i) Production system.

ii) Explain heuristic search techniques.

B) Answer the following : **6**

i) Explain the issues in knowledge representation.

ii) Explain the need of predicate logic.

3. Answer the following : **14**

   A) Explain the problem characteristics.

   B) Write Algorithm to convert to clause form.

4. Answer the following : **14**

   A) Explain the Bayes Theorem.

   B) Explain partitioned semantic Nets with descriptions.

5. Answer the following : **14**

   A) What is conceptual dependency and list its categories.

   B) Explain the Minimax search procedure.

6. Answer the following : **14**

   A) Explain the steps in natural language processing.

   B) Explain Dempster-Shafer theory.

7. Answer the following : **14**

   A) Differentiate between Top-Down versus Bottom-Up Parsing.

   B) Explain Expert System Shells.

SLR-GK – 34

Seat No.	

M.C.A. – III (Semester – V) Examination, 2014
COMPUTER SCIENCE
Web Technology (New)

Day and Date : Friday, 25-4-2014 Total Marks : 70
Time : 11.00 a.m. to 2.00 p.m.

Instructions : *1) Question No.* ***1*** *and* ***2*** *are* ***compulsory****.*
2) Attempt ***any 3*** *questions from Q. No.* ***3*** *to Q. No.* ***7****.*
3) Figures to the ***right*** *indicate* ***full*** *marks.*

1. A) Choose correct alternatives : **10**

1) 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

2) 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

3) Text within <EM> ..... </EM> tag is displayed as _____
   a) Bold b) Italic c) List d) Intended

4) Javascript is a _____ side scripting language.
   a) Browser b) ISP
   c) Server d) None of these

P.T.O.

5) HTML markup language is a set of Markup _____

a) Sets b) Tags

c) Attributes d) Groups

6) The tasks – authentication-blocking of requests, data compression, logging and auditing – are performed

a) Servlet Filter b) Servlet Config

c) Servlet context d) Servlet container

7) What is not true of JavaBean ?

a) There are no public instance variables

b) All persistent values are accessed by getxxx and setxxx methods

c) It may have many constructors as necessary

d) All the above are true of JavaBean

8) 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

9) Using which tag we insert an JavaScript in HTML page

a) <javascript type="text/javascript"></javascript>

b) <script type="text/javascript"></script>

c) <jscript type="text/javascript"></jscript>

d) <htmlscript type="text/javascript"></htmlscript>

10) Which is true to change the text color to red ?

a) <body bgcolor=red>

b) <body text=red>

c) <body color=red>

d) All the above

B) Fill in the blanks : **4**

1) The maximum age of the cookie in JSP can be set by _____

2) If the data being submitted in sensitive, then it's always preferred to use _____ method.

3) Javascript call a function _____ which writes a string into our HTML document.

4) The _____ is the primary organization that attempts to standardize HTML.

2. A) Write the short notes on the following : **8**

1) Explain different screen output and keyboard input of javascript with the help of an example.

2) Explain JPEG images in servlet with the help of an example.

B) Write short notes on the following : **6**

1) Create a servlet to welcome the user with the name.

2) Explain how servlet is different from CGI.

3. Answer the following : **14**

1) Explain JSP directives in detail.

2) Explain servlet session management and different techniques for it.

4. Answer the following : **14**

1) Explain JSP architecture with suitable diagram.

2) Write the HTML code to generate a Web Page in the format given below :

- Consider the following while writing the HTML code :

1) Background colour of the page should be 'Cyan"

2) Text style should be Comic Sans MS and colour should be Red

3) Picture used in the page is the file "activity.jpg"

4) Table should have a border of color blue

5) Use the concept of nested lists for creating the list given in the web page with specified bullets

6) Pages linked to :
   - Indoor Activities as “in.html”
   - Outdoor Activities as “out.html”

7) Bottom message should be of size 2.

5. Answer the following : **14**

1) Write a script that reads ‘n’ integers and displays the largest and smallest integer from the given number

2) Explain cookies in servlet with the help of the example.

6. Answer the following : **14**

1) Explain features of servlet 3.0 with its internationalization features in detail.

2) Explain in detail JSP and Servlet filters in detail with the help of an example.

7. Answer the following : **14**

1) Create a Custom Tag to welcome a user by his name

2) Explain in detail Javascript with its Date and Time methods.

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SLR-GK – 35

Seat No.	

M.C.A. – III (Sem. – V) Examination, 2014
COMPUTER SCIENCE (New)
Network Security

Day and Date : Monday, 28-4-2014 Max. Marks : 70
Time : 11.00 a.m. to 2.00 p.m.

***Instructions** : 1) Question No. **1** and **2** are **compulsory**.*
*2) Attempt **any three** questions from Q. No. **3** to Q. No. **7**.*
*3) Figures to the **right** indicate **full** marks.*

1. A) Choose the correct alternatives : **10**

1) A _____ attempts to alter system resources or affect their operation.
   A) Passive attack B) Active attack
   C) Threat D) None of these

2) _____ Involves the passive capture of a data unit and its subsequent retransmission to produce an unauthorized effect.
   A) Masquerade B) Replay
   C) Modification of message D) Denial of service

3) _____ is the protection of transmitted data from passive attacks.
   A) Authentication B) Access control
   C) Confidentiality D) Data integrity

4) _____ prevents either sender or receiver from denying a transmitted message.
   A) Masquerade B) Replay
   C) Modification of message D) Denial of service

5) TLS stands for _____
   A) Transport Layer Protocol B) Transaction Layer Protocol
   C) Transport Lower standard D) Telecommunication Layer Port

6) Passive entity or resource in a computer system
   A) Subject B) Object
   C) Response D) None of these

7) An individual who is not authorized to use the computer and who penetrates a system's access controls to exploit a legitimate user's account _____
   A) Misfeasor B) Masquerader
   C) Clandestine user D) None of these

8) A _____ processes the input one block of elements at a time, producing an output block for each block.
   A) Block Cipher
   B) Stream Cipher
   C) Table Cipher
   D) None of these

9) The _____ is the message after transformation.
   A) Plaintext B) Secret-text
   C) Cipher text D) None of these

10) IPSec is designed to provide the security at the
   A) Transport layer B) Network layer
   C) Application layer D) Session layer

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

1) Security depends on the secrecy of the key, not the secrecy of the algorithm.
2) A block cipher processes the input elements continuously, producing output one element at a time, as it goes along.
3) Passive attack affects the system resources.
4) S/MIME is an internet standard approach to e-mail security that incorporates the same functionality as PGP.

2. A) Write short notes on the following : **8**

i) Authentication.
ii) Block cipher.

B) Answer the following : **6**

i) Explain different security services.
ii) What is Attack ? Explain in short types of passive attacks.

3. Answer the following :
   A) Draw and explain a model for network security. **7**
   B) Explain HRU model in Detail. **7**

4. Answer the following :
   A) What is Cipher ? Explain Stream cipher with example. **7**
   B) Explain IP Encapsulating Security Protocol. **7**

5. Answer the following :
   A) Explain the following SSL protocols. **7**
      i) Record protocol
      ii) Handshake protocol
      iii) Alert protocol.
   B) Define Biometric. Explain components of Biometric. **7**

6. Answer the following :
   A) Define Cryptography. Discuss IDEA in detail. **7**
   B) Explain Access Control List (ACL) and capabilities. **7**

7. Answer the following :
   A) What is Intruder ? Explain different intrusion detection techniques. **7**
   B) Explain in short types of firewall with their advantages and disadvantages. **7**

SLR-GK – 36

Seat No.	

M.C.A. – III (Semester – V) (Computer Science) Examination, 2014
DIGITAL IMAGE PROCESSING (New)

Day and Date : Wednesday, 30-4-2014 Total Marks : 70
Time : 11.00 a.m. to 2.00 p.m.

Instructions : *1) Question No.* ***1*** *and* ***2*** *are* ***compulsory****.*
2) Attempt ***any 3*** *questions from Q. No.* ***3*** *to Q. No.* ***7****.*
3) Figures to the ***right*** *indicate* ***full*** *marks.*

1. A) Choose correct alternatives : **10**

1) Which of the following image processing step accepts input as image but whose outputs are attributes of image ?
   a) Image restoration b) Object recognition
   c) Image enhancement d) Image acquisition

2) Sampling of an image is required for
   a) Quantization b) Sharpening c) Smoothing d) Digitization

3) A pixel P at coordinates (x, y) has four horizontal and vertical neighbours whose coordinates are given by
   a) (x – 1, y – 1), (x – 1, y) (x, y – 1), (x, y + 1)
   b) (x + 1, y), (x – 1, y), (x, y + 1), (x, y – 1)
   c) (x + 1, y – 1), (x – 1, y), (x – 1, y + 1), (x, y + 1)
   d) (x + 1, y), (x + 1, y – 1), (x, y + 1), (x – 1, y + 1)

4) For change detection in image, generally applicable for mask mode radiography in medical images use
   a) Image addition b) Image subtraction
   c) Image multiplication d) Image complementation

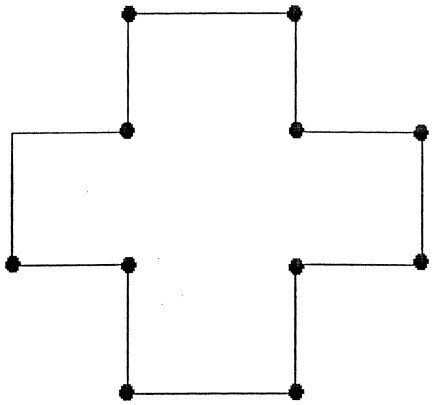
5) The Gaussian high pass filter can be expressed as
   a) $H(u, v) = e^{D^2(u, v)/2\sigma^2}$ b) $H(u, v) = -e^{-D^2(u, v)/2\sigma^2}$
   c) $H(u, v) = e^{-D^2(u, v)/2\sigma^2}$ d) $H(u, v) = e^{-D(u, v)/2\sigma^2}$

6) Midpoint filter is one of the
   a) Adaptive filters b) Order statistics filters
   c) Mean filters d) Periodic noise reduction filters

7) Which morphological operation tends to smooth sections of contours, fuses narrow breaks and long thin gulfs, eliminates small holes and fills gaps in the contour ?
   a) Dilation b) Erosion c) Opening d) Closing

8) For a logical predicate $P(R_i)$ defined over the points in set R_i
   a) $P(R_i \cup R_j) =$ TRUE for $i \neq j$ b) $P(R_i \cup R_j) =$ FALSE for $i \neq j$
   c) $P(R_i \cap R_j) =$ TRUE for $i \neq j$ d) $P(R_i \cap R_j) =$ FALSE for $i \neq j$

9) The shape number for the following structure is



   a) 133133133133 b) 030323212101
   c) 331331331331 d) 131131131131

10) For the quantitative description the patterns can be arranged as
   a) Strings b) Trees c) Scalars d) Vectors

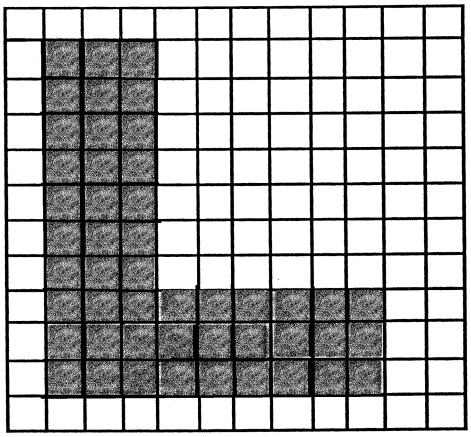
B) Fill in the blanks : **4**

1) A binary image of size 32×32 pixels requires _____ bits of storage.
2) The general form of log transform function is _____
3) The filter which is highly effective for salt and pepper noise is _____
4) The relationship between smoothing and sharpening frequency domain filters is _____

2. A) Write short notes on the following : **8**

i) Explain histogram equalization.

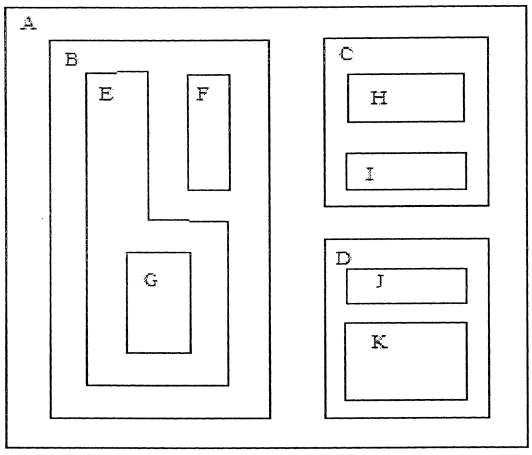
ii) Show steps in extraction of outer boundary of following object using appropriate morphological operations.



B) Answer the following : **6**

i) Explain different types of adjacencies.

ii) For the following structure define a relationship "Inside of" and generate a tree.



3. Answer the following : **14**

A) Discuss use of second derivatives for image enhancement using Laplacian method.

B) Perform morphological closing of an equilateral triangle with each side of 4 cm using structuring elements :

i) a circle of radius 1 cm

ii) a 1 × 1 square.

Show all the intermediate steps in the process separately.

4. Answer the following : **14**

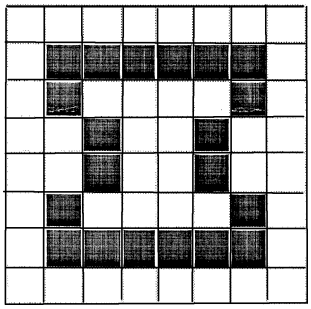
A) What are the different sharpening frequency domain filters ? Briefly discuss any two of them.

B) Discuss different order statistical filtering techniques and their applications.

5. Answer the following : **14**

   A) How to restore image in the presence of noise only using spatial filtering ? Explain.

   B) Fill the following region using morphological region filling algorithm.



6. Answer the following : **14**

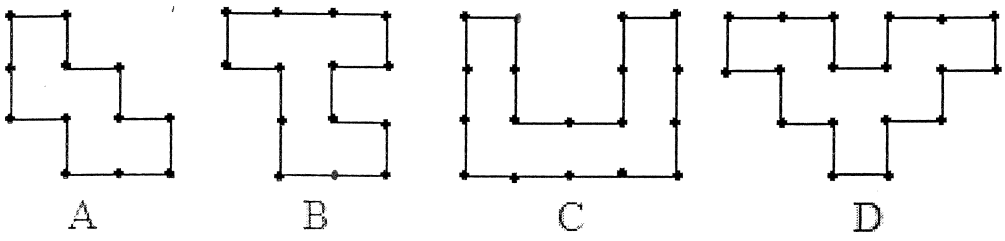
   A) What is thresholding ? Discuss basic global thresholding algorithm.

   B) Two class of objects denoted by ω_1 and ω_2 have sample mean vector $m_1 = (9, 12, 4)^T$ and $m_2 = (6, 14, 7)^T$ respectively. Compute the equation of boundary line which separates these two classes of objects.

7. Answer the following : **14**

   A) Briefly discuss relational descriptors with examples.

   B) Find out the distance among the different shapes shown in below figure. Also find which of the following shapes are near to each other.



SLR-GK – 38

Seat No.	

M.C.A. – III (Semester – V) Examination, 2014
COMPUTER SCIENCE (New)
Mobile Computing

Day and Date : Saturday, 3-5-2014 Total Marks : 70
Time : 11.00 a.m. to 2.00 p.m.

Instructions *: 1) Question No.* ***1*** *and* ***2*** *are* ***compulsory****.*
2) Attempt ***any 3*** *questions from Q. No.* ***3*** *to Q. No.* ***7****.*
3) Figures to the ***right*** *indicate* ***full*** *marks.*

1. A) Choose correct alternatives : **10**

i) Real antennas behave like
   a) Isotropic radiator b) Non-isotropic radiator
   c) Monotonic radiator d) None of the above

ii) GSM is a digital cellular phone system which uses
   a) FDMA b) TDMA
   c) CDMA d) both (a) and (b)

iii) What is Transceiver ?
   a) It is a combination of Transmitter and Receiver
   b) It is a another name of Transmitter
   c) It is a another name of Receiver
   d) It is a advanced form of Transmitter

iv) Bluetooth is example of
   a) Infrastructure network b) Ad-hoc network
   c) Streamed network d) None of the above

v) Cellular architecture is based on _____
   a) hub network b) mobile network
   c) ad hoc network d) ATM network

vi) In a GSM system BTS and BSC together form _____
   a) Network stations b) Base system subsystem
   c) Maintenance station d) Operational subsystem

P.T.O.

vii) Mobile phone in roaming is registered in _____
   a) Visitors location registry of another MSC
   b) Visitors location registry of same MSC
   c) Home location registry of another MSC
   d) Visitors location registry of same MSC

viii) Which of the following is not part of classical TCP ?
   a) Indirect TCP b) Mobile TCP
   c) Snooping TCP d) All of these

ix) _____ protocol solves the problem of hidden and exposed terminals.
   a) PRMA b) DAMA
   c) TDMA d) MACA

x) The process of channel coding, encryption, multiplexing and modulation for transmission direction and reverse for reception are to be carried out by
   a) BTS b) BSC
   c) MSC d) MS

B) Fill in the blanks or **True**/**False** : **4**

i) Bearer services is one of the categories of Mobile Services.
   A) True B) False

ii) Call redirection is not the services provided by supplementary services of Mobile Computing.
   A) True B) False

iii) Inter cell Intra BSC Handover is one of the four types of Handover available in GSM.
   A) True B) False

iv) RSS is not a subsystem in GSM system.
   A) True B) False

2. A) Write short notes on the following : **8**
   i) PRMA
   ii) Selective Transmission.

B) Answer the following : **6**
   A) What is Multiplexing ? List out its types.
   B) Explain in brief time division multiplexing with an example.

3. Answer the following : **14**

   A) What is Modulation ? Discuss in brief Amplitude Modulation.

   B) What is Polling ? Explain its significance.

4. Answer the following : **14**

   A) Explain the Architecture of IEEE 802.11.

   B) What is Roaming ? Explain various steps in Roaming in GSM.

5. Answer the following : **14**

   A) Describe the Mobile IP in detail.

   B) Explain in brief DHCP.

6. Answer the following : **14**

   A) What is Congestion control ? Explain with an example.

   B) Describe in brief the Snooping TCP.

7. Answer the following : **14**

   A) What is Handover ? What is the need of Handover ?

   B) Explain the Architecture of Cellular System.

SLR-GK – 4

Seat No.	

M.C.A. (Part – I) (Semester – I) Examination, 2014
COMPUTER SCIENCE
Microprocessors

Day and Date : Wednesday, 30-4-2014 Total Marks : 70
Time : 11.00 a.m. to 2.00 p.m.

***Instructions** : 1) Question No. **1** and **2** are **compulsory**.*
*2) Attempt **any 3** questions from Q. No. **3** to Q. No. **7**.*
*3) Figures to the **right** indicate marks to a question or sub question.*

1. A) Choose the most correct alternative. **10**

1) The entire processing of microprocessor is controlled by
   a) ALU b) Control Unit
   c) Peripheral connected d) General purpose registers
2) Both read and write signals of 8085 are active
   a) Low b) High c) High/Low d) None of these
3) In a microprocessor based system, the address signals are sent by
   a) I/O device b) Memory
   c) Microprocessor d) All of the above
4) In 8279, a scanned sensor matrix mode, if a sensor changes its state, the _____ line goes _____ to interrupt the CPU.
   a) CS, high b) A0, high c) IRQ, high d) STB, high
5) The 32 bit microprocessor carries data from or to the memory on 32-number of
   a) Address lines b) Data lines
   c) Control lines d) Input lines
6) When the 8255 is reset, its I/O ports are all initializes as
   a) Output port using mode 0 b) Input port using mode 1
   c) Output port using mode 1 d) Input port using mode 0
7) Which pins are general purpose I/O pins during mode-2 operation of the 8255 ?
   a) PA0 – PA7 b) PB0 – PB7 c) PC3 – PC7 d) PC0 – PC2

8) Microcontrollers often have
   a) CPU b) RAM c) ROM d) All of the above
9) In 8086 the following has the highest priority among all the interrupts
   a) NMI b) DIV O c) TYPE 255 d) OVER FLOW
10) If the programmable counter timer 8254 is set in mode 1 and is to be used to Count six events, the output will remain at logic 0 for _____ number of counts.
   a) 5 b) 6 c) 0 d) All of the above

B) State whether **true**/**false** : **4**

1) The address bus of 8085 is multiplexed.
2) In 8051 microcontroller IE1 interrupt has highest priority.
3) Code segment is the most important segment and it contains the actual assembly language instruction to be executed by the microprocessor.
4) 8254 programmable timer is used to generate timing signal.

2. A) Answer the following : **8**
   i) Explain the any four arithmetic instructions of 8086 with suitable example.
   ii) Draw and explain the timing diagram for the memory read instruction.

   B) Draw and explain the PSW of 8085. **6**

3. A) Draw a schematic diagram for maximum mode of 8086 microprocessor. **7**

   B) Explain various addressing modes of 8086 with suitable example. **7**

4. A) Draw and explain the block diagram of the 8254. **7**

   B) What are different commands of the 8279 ? Explain them. **7**

5. A) Explain the central processing unit of 80386. **7**

   B) Give the features of 80186, 80386, 80486 and pentium processor with reference to address bus, data bus, memory size, and instruction set. **7**

6. A) Explain the working of each pin of Intel 8051 microcontroller. **7**

   B) What is microcontroller ? Compare microprocessors and microcontrollers in details. **7**

7. A) Explain various segments of 8086. **7**

   B) Draw internal architecture 8085 microprocessor and explain the timing and control unit. **7**

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SLR-GK – 5

Seat No.	

M.C.A. (Semester – I) Examination, 2014
COMPUTER SCIENCE
Management – I

Day and Date : Saturday, 3-5-2014 Max. Marks : 70
Time : 11.00 a.m. to 2.00 p.m.

Instructions** : 1) Question No. **1** and **2** are **compulsory.
*2) Attempt **any 3** question from Q. No. **3** to Q. No. **7.***
*3) Figures to the **right** indicate **full** marks.*

1. A) Choose the correct alternative : **10**

1) Provision for bad debts is made for _____
   a) Creditors b) Debtors
   c) Stock d) Provision for tax

2) Outstanding salary is a _____
   a) Personal account b) Real account
   c) Nominal account d) Either b) or c)

3) A quality circle is a volunteer group composed of _____ usually under the leadership of their supervisor.
   a) Managers b) Supervisors
   c) Workers d) Helper

4) The business is said to be break even when its total sales value _____ to its total cost.
   a) Greater than b) Lesser than
   c) Equal to d) Either a) or b)

5) Impersonal accounts includes _____
   a) Nominal account b) Real account
   c) Personal account d) Only a) and b)

6) _____ assumes finish-to-start relationship between two related activities.
   a) CPM b) PERT c) GNATT d) All the above

7) _____ discount appears in the books of account.
   a) Trade b) Bank c) Cash d) All the above

8) In the books of accounts owner and business are the _____ entity.
   a) Same b) Separate
   c) Similar d) Only a) and c)

9) _____ is an intangible asset.
   a) Cash b) Land c) Investments d) Goodwill

10) Marketing department creates _____ for the business.
   a) Sales activity
   b) Research activity
   c) Advertisements
   d) All the above

B) State the following statements are **true** or **false** : **4**

i) Accounting period starts and end at 31st March to 1st April per year respectively.

ii) Free sample is an example of sales promotion.

iii) Advertising represents a company, product and services.

iv) Quality circle is a task performed only by top level management.

2. A) Write short note on the following : **8**

i) Advertising ii) Quality circle

B) Answer the following : **6**

i) Sales promotion ii) Break-even point

3. Answer the following : **14**

A) Journalize the following primary entries in the books of Chetak enterprises for the month of June 2011.

1. Chetak started business with cash Rs. 90,000
2. Interest received from bank Rs. 3,000 as on investment of Rs. 3,00,000.
3. Purchased assets of Rs. 2,00,000 with 10% trade discount and 5% cash discount.

4. Sold goods to M/s Amol trading Co. of Rs. 75,000
5. Paid rent and wages Rs. 10,000 and Rs. 15,000 respectively.
6. Amount received from M/s Amol trading co. 80,000 by charging interest.
7. The goods costing Rs. 50,000 sold to Mr. Chetak at a profit of 20%.

B) What is performance appraisal ? Explain methods of performance appraisal.

4. Answer the following : **14**

A) Explain the meaning, nature and features of human resource management.

B) Explain rules of accounting with suitable examples.

5. Answer the following : **14**

A) The following information extracted from the books of Deepali Trading Co.

Fixed cost	26,000
Variable cost	30,000
Total cost	56,000
Net sales	60,000

Find out **any two** :

a) Break-even point

b) Profit for sales volume Rs. 1,00,000

c) Margin of safety.

B) From the following information you are required to calculate :

a) P. V. Ratio

b) Break-even point (sales and unit)
Actual sales Rs. 3000 units
Selling price per unit Rs. 20
Variable cost per unit Rs. 12
Fixed cost per month Rs. 10,000

6. Answer the following : **14**

A) Prepare Profit and Loss account from the following Trial Balance :

Trial Balance

Name of the account	**Debit Rs.**	**Credit Rs.**
Capital	–	80,000
Cash in hand	50	–
Purchases	7,500	–
Sales	–	10,000
Furniture	1,000	–
Lighting and electricity	100	–
Bills receivable	850	–
Salaries	2,000	–
Creditors		1,800
Debtors	6,200	–
Stock on 1st April 2009	3,500	–
Printing	250	–
Bills payable	–	1,500
Rent and taxes	200	–
Discount received	–	500
Discount allowed	150	–
Total	**21,800**	**21,800**

Adjustments : Stock on 31st March 2010 was valued Rs. 2,000 and gross profit Rs. 1,000.

B) Prepare Trial Balance from the following ledger accounts :

Cash A/c Rs. 9,000; Creditors A/c Rs. 15,000; Debtors A/c Rs. 6,000; Machinery A/c Rs. 16,000; capital A/c Rs. 50,000; Purchase A/c Rs. 40,000; Sales A/c Rs. 45,000; Mr. Jay's A/c Rs. 15,000; Salaries A/c Rs. 18,000; Wages A/c Rs. 12,000; Discount received A/c Rs. 1,500; Mr. Vijay's A/c Rs. 10,000; Drawing A/c Rs. 5,000; Discount allowed A/c Rs. 500.

7. Answer the following : **14**

A) Explain 4 P's of marketing with example.

B) Explain CPM and PERT in detail

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SLR-GK – 6

Seat No.	

M.C.A. – I (Sem. – II) Examination, 2014
COMPUTER SCIENCE
Object Oriented Programming Using C++

Day and Date : Thursday, 24-4-2014 Max. Marks : 70
Time : 11.00 a.m. to 2.00 p.m.

N. B. *: 1) Question No.* ***1*** *and* ***2*** *are* ***compulsory****.*
2) Attempt ***any 3*** *questions from Q. No.* ***3*** *to Q. No.* ***7****.*
3) Figures to the ***right*** *indicate* ***full*** *marks.*

1. A) Choose correct alternatives (**10** questions) : **10**

1) A template is
   a) a collection of similar elements
   b) a collection of dissimilar elements
   c) a combination of data members and member functions
   d) none of the above

2) Which operator can not be overloaded ?
   a) > = b) · * c) new d) delete

3) The object name is also called as its
   a) Identity b) State
   c) Behavior d) All

4) Static variable should be defined
   a) Inside the function b) Outside the function
   c) In the function call d) Anywhere

5) Which of the following is a valid function pointer call in C++ ?
   a) Void (* example) (1, 2); b) F = (* example) (1, 2);
   c) example (1, 2) d) example $\rightarrow$ (1, 2);

6) Reference is a
   a) Synonym for pointer b) Value at address
   c) Another name for a class d) All

7) Constructor can return
   a) Void data
   b) Any data of user-defined
   c) Any data of built-in
   d) No value

8) The relationship between the base class and the derived class is called
   a) "IS-A" relationship
   b) "Kind-of" relationship
   c) "Part of" relationship
   d) Both a) and b)

9) To change the base of a number which of the following manipulator is used ?
   a) setbase ( )
   b) setw ( )
   c) setprecision ( )
   d) all the above

10) The three key words used with exception handling are
   a) generate, handled, conclude
   b) generate, catch, finally
   c) throw, catch, conclude
   d) try, catch and throw

B) State whether the following statements are **true** or **false** (**4** questions) : **4**

1) A copy constructor could be defined to copy only part of an objects data.

2) NULL pointer is also called a zero pointer.

3) A friend of a class can access all the private and protected members of a class directly.

4) A class is metadata.

2. A) Write short notes on the following : **8**

i) Virtual function and pure virtual function.

ii) Manipulators.

B) Answer the following : **6**

i) Difference between procedural programming and object oriented programming.

ii) What is early and late binding ?

3. Answer the following : **14**

   A) Write a program for demonstrate the use of destructor and constructors.

   B) Write a program for inheritance of multiple base classes.

4. Answer the following : **14**

   A) Write a program to swap two values of generic type T using class template defining member function out of the class.

   B) Write a program to use many catch blocks.

5. Answer the following : **14**

   A) What is operator overloading ? Give the rules to overload an operator. Also write syntax and advantages of operator overloading.

   B) Write a program to overload new and delete operators.

6. Answer the following : **14**

   A) Why we use this pointer ? Explain with example.

   B) Write a program to all types of constructor.

7. Answer the following : **14**

   A) Write a program for following output using formatted console I/O operations.

```
– – – – – – – – – – – – – – – – – – –
Designation          Salary (in Rs.)
– – – – – – – – – – – – – – – – – – –
– – – – – – – – CEO  * * * * 10200
– – – – Manager      * * * * * 5600
– – – – – – Clerk    * * * * * 2900
– – – – – – Peon     * * * * * * 800
– – – – – – – – – – – – – – – – – – –
```

   B) Explain some special operators with its syntax for overloading
   i) [ii) ( ) iii) – and also give its benefits.

SLR-GK – 7

Seat No.	

M.C.A. – I (Sem. II) Examination, 2014
COMPUTER SCIENCE
Data Structures

Day and Date : Saturday, 26-4-2014 Total Marks : 70
Time : 11.00 a.m. to 2.00 p.m.

***Instructions** : 1) Question No. **1** and **2** are **compulsory**.*
*2) Attempt **any 3** questions from Q. No. **3** to Q. No. **7**.*
*3) Figures to the **right** indicate **full** marks.*

1. A) Choose the correct alternative.

1) The average search time of hashing with linear probing will be less if the load factor. **10**

a) Is far less than one b) Equals one

c) Is far greater than one d) None of above

2) The complexity of binary search algorithm is

a) n b) $n\log_n$

c) $\log_n$ c) n^2

3) The postfix equivalent of the prefix * + ab – cd is

a) ab + cd – * b) abcd + – *

c) ab + cd * – d) ab + – cd *

4) The linked list implementation of sparse matrices is superior to the generalized dope vector method because it is

a) Conceptually easier

b) Completely dynamic

c) a and b

d) None of these

P.T.O.

5) The average successful search time for sequential search on 'n' items is

a) n/2 b) (n – 1)/2

c) (n + 2)/2 d) log(n) + 1

6) Linked lists are suitable for which of the following problems ?

a) Insertion sort b) Binary search

c) Radix sort d) Polynomial manipulation

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

a) Linear arrays b) Linked list

c) Both of above d) None of above

8) Two dimensional arrays are also called

a) Tables arrays b) Matrix arrays

c) Both of above d) None of above

9) Which of the following statement is false ?

a) Arrays are dense lists and static data structure

b) Data elements in linked list need not be stored in adjacent space in memory

c) Pointers store the next data element of a list

d) Linked lists are collection of the nodes that contain information part and next pointer

10) The situation when in a linked list START = NULL is

a) Underflow b) Overflow

c) Houseful d) Saturated

B) Fill in the blanks **True** or **False** : **4**

1) _____ is the process of visiting every node in a tree atleast once.

2) In _____ , the root node is visited last.

3) A tree can represent many-to-many relationships.

4) A cyclic graphs do not have cycles.

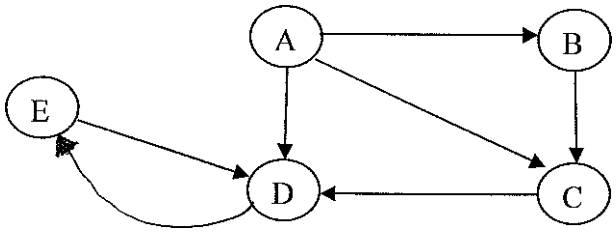
2. A) Write short note on : **8**
   a) Recursion with example.
   b) Threaded binary tree.
   B) Answer the following : **6**
   a) Describe properties of list structures.
   b) Priority queue.

3. a) Explain any one application of linked list in detail. **14**
   b) Explain various application of stack.

4. a) Explain applications of queue in detail. **14**
   b) Explain hashing technique in detail.

5. a) Write an algorithm for simple merge sort technique. **14**
   b) Write an algorithm for inserting new node at the end of circular single linked list.

6. a) Explain list structures in detail. **14**
   b) What is graph ? Define adjacency matrix and path matrix. Give adjacency matrix and path matrix for the following graph.



7. a) Write a C/C++ program to reverse a string using stack. **14**
   b) Explain collision resolution technique in detail.

SLR-GK – 9

Seat No.	

M.C.A. – I (Semester – II) (Computer Science) Examination, 2014
OPERATING SYSTEM

Day and Date : Friday, 2-5-2014 Total Marks : 70
Time : 11.00 a.m. to 2.00 p.m.

Instructions *: 1) Question No.* ***1*** *and* ***2*** *are* ***compulsory****.*
2) Attempt ***any 3*** *questions from Q. No.* ***3*** *to Q. No.* ***7****.*
3) Figures to the ***right*** *indicate* ***full*** *marks.*

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

1) Which of the following is true in the context of Inter-process communication ?
   a) It is like a user defined procedure call
   b) It is like user defined a function call
   c) It is a system call
   d) All

2) _____ allocates the largest hole (free fragment) available in the memory.
   a) Best Fit b) Worst Fit
   c) First Fit d) None

3) Round robin scheduling is essentially the preemptive version of _____
   a) FIFO b) Shortest job first
   c) Shortest remaining d) Longest time first

4) Which of the following file name extension suggests that the file is Backup copy of another file ?
   a) TXT b) COM
   c) BAS d) BAK

5) Virtual Memory is commonly implemented by _____
   a) Segmentation b) Swapping
   c) Demand paging d) None

6) The purpose of co-operating process is _____
   a) Information sharing b) Convenience
   c) Computation speed-up d) All

7) _____ is an example of distributed system.
   a) client server system b) clustered system
   c) multiprocessor system d) none

8) If there are four conditions deadlock will occur if _____ no. of conditions will run simultaneously.
   a) two b) three c) four d) a) and b) both

9) Compaction is a solution for _____
   a) internal fragmentation b) external fragmentation
   c) both d) none

10) A binary semaphore _____
   a) has the values one or zero
   b) is essential to binary computers
   c) is used only for synchronization
   d) is used only for mutual exclusion

B) State **true** or **false** : **4**

1) Two programs can share the same memory space, but not at the same time.
2) Waiting time is the time a job spends in the I/O queue.
3) Message passing is a higher level abstraction over semaphore.
4) A network operating system, the users access remote resources in the same manner as local resource.

2. A) Write short notes on the following : **8**

i) Process control block.
ii) Disk structure.

B) Answer the following : **6**

i) Explain context switch.
ii) Explain the concept of multiprogramming.

3. Answer the following : **14**

   A) Define operating system and describe components of operating system.

   B) Comment on dead lock prevention is better than dead lock avoidance.

4. Answer the following : **14**

   A) Recovery plays an important role in the file management system comment.

   B) Explain the non-preemptive algorithms.

5. Answer the following : **14**

   A) What is process scheduling ? Explain different types of schedulers.

   B) Explain how segmentation differs from paging.

6. Answer the following : **14**

   A) Explain distributed OS and Parallel OS.

   B) Explain interprocess communication in detail.

7. Answer the following : **14**

   A) Discuss different security measures should be taken for accessing data from computer.

   B) Explain various categories of system calls.