

I Semester M.Sc. (I.T.) Examination, June/July 2010
ALGORITHM ANALYSIS AND DESIGN
(Freshers)

Time : 3 Hours

Max. Marks : 75

PART – A

I. Answer **all** questions :

(10×2+5×1=25)

- 1) What is an Algorithm ?
- 2) What is Abstract Data type ?
- 3) What are finite automata ?
- 4) What is a pointer ?
- 5) What is a linked list ?
- 6) What is data dictionary ?
- 7) What is a set ?
- 8) What is Dynamic Programming ?
- 9) What is Sorting ?
- 10) What is Backtracking ?
- 11) Define the following :
 - a) External sorting
 - b) RBT
 - c) Heap
 - d) KMP
 - e) Mapping

P.T.O.

PART – B

II. Answer **any five** questions :

(5×10=50)

1. How will you define an algorithm ? Describe the criteria that an algorithm must satisfy.
 2. Which data structure makes of a LIFO list ? Explain.
 3. What is ADT ? Explain.
 4. Describe the various notations used to define the efficiency of an algorithm.
 5. Explain the KMP algorithm for string matching.
 6. Discuss the Traveling Salesman Problem.
 7. What is a heap ? Explain Heap sort.
 8. What are the basic operations which can be performed on strings ?
-

I Semester M.Sc. (I.T.) Examination, June/July 2010
DISCRETE MATHEMATICS
(Freshers)

Time : 3 Hours

Max. Marks : 75

Instructions : 1) Answer *all* questions in Part – A.
2) Answer *any 5* questions in Part – B.

PART – A

1. What is a set ? (10×2+5×1=25)
2. What is a graph ?
3. What is a venn diagram ?
4. What is a Finite Geometry ?
5. Explain Eulerian walk.
6. Describe Hamiltonian cycles.
7. What is sorting ?
8. What is searching ?
9. Explain Inclusion-Exclusion.
10. Explain Pigeonholes.
11. Define the following :
 - a) Quantifiers
 - b) Classical Cryptography
 - c) Paths
 - d) Eulers formula
 - e) Fibonacci Theorem.

P.T.O.

PART – B

Answer **any 5** questions :

(5×10=50)

1. Prove that each row of Pascal's triangle starts and ends with 1.
 2. Explain equivalence and implication with examples.
 3. Explain the Twin Paradox and the Good old logarithm with an example.
 4. Explain Convex polygons with an example.
 5. Explain intersections of Diagonals with an example.
 6. Explain Binomial theorem.
 7. Explain Coloring Graphs with two colors.
 8. Explain Record Keeping.
-

I Semester M.Sc. (I.T.) Examination, June/July 2010
ADVANCED RDBMS
(Freshers)

Time : 3 Hours

Max. Marks : 75

***Instruction** : Answer **all** questions from Part – A, and answer **any five** questions from Part – B.*

PART – A

(10×2+5×1=25)

1. What is an Entity ?
2. Define Relationship.
3. Explain ER Diagram.
4. What is an attribute ?
5. What are weak and strong entities ?
6. Explain Heterogeneous Database.
7. Explain Generalization and Specialization.
8. Explain Distributed Concurrency Control.
9. Explain relational algebra operations.
10. Explain building block of DNA.
11. Expand the following :
 - a) ISDN
 - b) TDMA
 - c) GDS
 - d) CDMA
 - e) GSM.

P.T.O.

PART – B

Answer **any five** :

(5×10=50)

1. How are entities classified ? Explain the various types of entities with the help of examples.
 2. What are the constraints on Specialization and Generalization ?
 3. Explain Relational and Object Oriented Databases.
 4. Explain the basic concepts of OODB.
 5. Explain in brief different wireless access technologies used to connect mobile users to wired networks.
 6. What is a multimedia data model ? Explain its architecture.
 7. Explain the architecture of Data Mining Systems.
 8. Explain the logical and physical design of data warehouse design.
-

I Semester M.Sc. (I.T.) Examination, June/July 2010
COMPUTER PROGRAMMING (Freshers)

Time : 3 Hours

Max. Marks : 75

***Instruction** : Answer **all** questions from Part A and answer **any five** questions from Part B.*

PART – A

(10×2+5×1=25)

1. What is an Algorithm ?
2. What is Flow Chart ?
3. What do you mean by linked list ?
4. What is the significance of pointers in Linked list ?
5. Explain the concept of Nested Structure.
6. What is complexity ?
7. What do you mean by enumerated constants ?
8. Explain the use of malloc(), calloc(), free() functions.
9. What is linear data structure ?
10. What is a stack ?
11. Define the following :
 - a) Queue
 - b) Graph
 - c) Tree
 - d) Recursion
 - e) Loop.

P.T.O.

PART – B

Answer **any five** :

(5×10=50)

1. Explain various types of Symbol uses in Flow Chart.
 2. Explain the various types of Data types used in C language. Write a program to Read a name and display the same.
 3. Write a program in C for finding the product of matrices.
 4. Write a program to sort number in ascending order using Bubble sort.
 5. What do you understand by Primitive and Simple Structures ? Give examples also.
 6. Explain traversing using Depth First Search and Breadth First Search.
 7. What do you mean by B-Tree ? Explain B-Tree Deletion.
 8. What do you understand by Indexed Sequential file organization ?
-

I Semester M.Sc. (I.T.) Examination, June/July 2010
INDUSTRIAL MANAGEMENT

Time : 3 Hours

Max. Marks : 75

PART – A

Answer **all** questions :

(12×2+1×1=25)

1. What is job order production ?
2. Write the advantages of the functional layout.
3. What are the advantages of layout planning ?
4. Write the objectives of production control.
5. Write the routing procedure.
6. Write the functions of dispatching.
7. Write the difference between direct and indirect costing.
8. What is routine maintenance ?
9. What is price analysis ?
10. What do you mean by depreciation ?
11. What do you mean by motion study ?
12. Write the importance of quality control.
13. Define production phase.

P.T.O.

PART – B

Answer **any five** questions :

(5×10=50)

1. Explain in detail production planning and control.
 2. Explain the importance of cost planning with respect to industrial management.
 3. Explain different types of maintenance.
 4. What do you mean by material management ? Explain in detail.
 5. Write short note on following :
 - a) Budgeting
 - b) Creative purchasing.
 6. What is time study ? Explain different methods of time study.
 7. The growth of fall of an enterprise depends on its quality. Justify.
 8. Explain the importance of computerization in an industry.
-

I Semester M.Sc. (I.T.) Examination, June/July 2010
ANALYSIS AND DESIGN OF ALGORITHMS

Time : 3 Hours

Max. Marks : 75

PART – A

Answer **all** questions :

(12×2+1×1=25)

1. Mention different characteristics of algorithm.
2. Explain 4 main block of an iterative process.
3. Mention 2 conditions that must be satisfied by any recursive procedure.
4. Mention the demerits of iteration method.
5. Define a finite graph, with an example
6. Define general graph.
7. Mention the properties of tree.
8. Define a spanning tree.
9. Mention the steps involved in divide and conquer method.
10. What is cassette filling ?
11. What is backtracking ?
12. What is sequential search ?
13. A graph with finite number of vertices _____

PART – B

Answer **any five** questions :

(5×10=50)

1. a) Write an algorithm to check whether a given point p(x,y) lies on x-axis or y-axis or in I/II/III/IV quadrant.
b) Write an algorithm to check whether the given number is palindrome or not.

P.T.O.

2. a) Write an algorithm for merge sort.
b) Write an algorithm to implement hashing technique.
 3. Use your own graph and find the following.
 - a) Spanning tree
 - b) Incidence matrix
 - c) Hamiltonian path
 - d) Binary tree.
 4. Write a program to find the maximum and minimum of the list of n element with and without using recursion.
 5. What is 0/1 knapsack ? Write algorithm and illustrate the difference between general knapsack and 0/1 knapsack.
 6. Write the algorithm for job scheduling method and explain.
 7. With an example explain :
 - a) Cassette filling problem
 - b) Subset problem.
 8. Explain the different techniques for searching graph.
-

I Semester M.Sc. (I.T.) Examination, June/July 2010
VISUAL PROGRAMMING

Time : 3 Hours

Max. Marks : 75

PART – A

Answer **all** questions :

(10×2+5×1=25)

1. What is VB wizard ?
2. What is the difference between a Form window and an application window ?
3. List the steps to create an application in VB.
4. Where do you add code to your programs ?
5. What extension does VB use for Active X controls ?
6. Write the function of Round () and Int () operations.
7. Write the function of Public ().
8. What is nesting ? Give example.
9. Why do you use serialize () function ?
10. Write the purpose of checkboxes used in VB.
11. Briefly explain the following :
 - a) MDI
 - b) Textout ()
 - c) Create font ()
 - d) Visual data manager
 - e) On key down ().

P.T.O.

PART – B

Answer **any five** questions :

(5×10=50)

1. Create an application to calculate simple interest. Add 3 text boxes to accept input for principal, time, rate of interest and display simple interest in a textbox. Add two command buttons result and exit.
 2. Explain the following :
 - i) Lcase ()
 - ii) UBound ()
 - iii) R Trim ()
 - iv) RND ()
 - v) Redim ()
 3. Explain different list boxes with example.
 4. Explain the steps to create a project to display “welcome to VC++” in VC++.
 5. Write and explain the steps to create Database in VB.
 6. Write the steps to write code to the WM_MouseMove event in VC++.
 7. Write a note on WM_Paint event.
 8. Explain the steps to create a simple MDI program.
-

I Semester M.Sc. (I.T.) Examination, June/July 2010
ADVANCED OPERATING SYSTEM

Time : 3 Hours

Max. Marks : 75

PART – A

Answer **all** questions :

(12×2+1×1=25)

1. Mention the function of OS.
2. Define a process.
3. What is multithreading ?
4. What is a Deadlock ?
5. State Banker's Algorithm.
6. What is fragmentation ? Mention different types.
7. Define Segmentation.
8. Mention attributes of a file.
9. What is authentication ?
10. What is RPC ?
11. Mention the characteristics of Distributed processing.
12. What are separate supervisors ?
13. What are Cross line - connected systems ?

P.T.O.

PART – B

- Answer **any five** from the following : **(5×10=50)**
1. Explain the following : **10**
 - a) Storage hierarchy
 - b) Spooling
 - c) Time-sharing operating system.

 2. Write a note on : **10**
 - a) Process Control Block
 - b) Scheduling Queues
 - c) Multitasking

 3. a) Explain different scheduling criteria. **6**
b) Differentiate preemptive and non-preemptive scheduling. **4**

 4. a) With a diagram explain resource allocation graph. **5**
b) Explain Safe State algorithm. **5**

 5. Explain Paging with a neat diagram. **10**

 6. a) What is thrashing and what is its cause ? **5**
b) What is the role of page size in a paging environment ? **5**

 7. a) What is the need for migration ? Explain different types of Migration. **5**
b) Discuss the importance of cache in distributed processing. **5**

 8. a) Explain Bus-Oriented Systems. **5**
b) What are semaphores ? Explain how semaphores are used to implement mutual exclusion and critical section problem. **5**
-

I Semester M.Sc. (I.T.) Examination, June/July 2010
FOUNDATION COURSE

Time : 3 Hours

Max. Marks : 100

Instruction : Answer ***all*** the questions. ***Each*** question carries ***one*** mark.

PART – A

1. In addition of two signed numbers, represented in 2's complement form generates an overflow if
 - a) $A \cdot B = 0$
 - b) $A \oplus B = 0$
 - c) $A \oplus B = 1$
 - d) $A + B = 1$Where A is the carry in to the sign bit position and B is the carry out of the sign bit position.
2. Round Robin scheduling is used in
 - a) Disk scheduling
 - b) CPU scheduling
 - c) I/O scheduling
 - d) Multitasking
3. Banker's algorithm is used in
 - a) Threads
 - b) CPU scheduling
 - c) Deadlock avoidance
 - d) Paging
4. Compaction is a solution to
 - a) Dead locks
 - b) Fragmentation
 - c) Security problems
 - d) Concurrency problems
5. For (;)
 - a) means the test which is done using some expression is always true
 - b) is not valid
 - c) will loop forever
 - d) should be written as for ()

6. Within a **switch** statement :
- a) **Continue** can be used but **Break** cannot be used
 - b) **Continue** cannot be used but **Break** can be used
 - c) Both **continue** and **Break** can be used
 - d) Neither **continue** nor **Break** can be used.
7. Literals are
- a) essentially constants directly used in an operand field
 - b) essentially variable directly used in an operand field
 - c) essentially constants directly used in an operator field
 - d) essentially constants directly used in a program
8. Those activities of an assembler which are concerned with the processing of a macro are termed as
- a) Assembly time activities
 - b) Expansion time activities
 - c) Compiler time activities
 - d) Linker time activities
9. Loader is also known as
- a) Linkage editor
 - b) Loader editor
 - c) Compiler
 - d) Assembler
10. Error detection at data link level is achieved by
- a) Bit stuffing
 - b) CRC
 - c) Hamming code
 - d) Cross product
11. The operation which is not considered a basic operation of relational algebra is
- a) Join
 - b) Selection
 - c) Union
 - d) Cross product
12. Fifth normal form is concerned with
- a) Functional dependency
 - b) Multivalued dependency
 - c) Join dependency
 - d) Domain-Key

13. An analysis which determines the meaning of a statement once its grammatical structure becomes known is termed as

- a) Semantic analysis
- b) Syntax analysis
- c) Source text analysis
- d) Lexical analysis

14. The C language terminator is

- a) Semicolon
- b) Colon
- c) Period
- d) Exclamation mark

15. What is true about the following C functions ?

- a) Need not return any value
- b) Should always return an integer
- c) Should always return a float
- d) Should always return more than one value.

16. Main must be written as

- a) The first function in the program
- b) Second function in the program
- c) Last function in the program
- d) Any where in the program.

17. Which of the following about automatic variables within a function is correct ?

- a) Its type must be declared before using the variable
- b) They are local
- c) They are not initialized to zero
- d) They are global

18. Write one statement equation of the following two statements

```
x = sqrt(a);
```

```
return (x);
```

Choose from one of the alternatives

- a) `return(sqrt(a));`
- b) `printf("sqrt(a)");`
- c) `return(a*a*a*);`
- d) `printf("%d",sqrt(a));`

19. Which of the following about the C comments is incorrect ?
- a) comments can go over multiple lines
 - b) comment can start any where in the line
 - c) a line can contain comments with out any language statements
 - d) comments can occur within comments.

20. What is the value of y in the following code ?

```
x = 7 ; y = 0;
```

```
if (x = 7)
```

```
  y = y + 1
```

```
else
```

```
  y = 6;
```

- a) 7
- b) 0
- c) 1
- d) 6

PART – B

Fill in the blanks with suitable answers. **Each** question carries **one** mark.

1. If $A = \{2, 3, 4, 5\}$, $B = \{1, 2, 5, 6\}$ then $A \cap B$ is _____
2. _____ denotes the set of rational numbers.
3. If A is a matrix such that $A = A^T$ then A is called _____ matrix.
4. The solution of the equation $Y = x^3 - 3x^2 + 3x - 1$ is _____

5. If $A = \begin{pmatrix} 1 & 0 & 1 \\ 2 & 1 & 0 \\ 3 & 0 & 1 \end{pmatrix}$ Then A^3 is _____

6. Area of a circle is given by _____

7. A null set contains _____ elements.
8. If A and B are two sets and $f : A \rightarrow B$ is a function such that $f(A) = B$, then f is _____
9. If A is a set consisting of N elements then power set of A contains _____ elements.
10. The slope intercept form of a line is _____
11. Given $y = a^x$, a is a constant, $dy/dx =$ _____
12. Π is called _____ number.
13. $\int \tan x dx =$ _____
14. Matrix multiplication does not satisfy _____ property.
15. IF A and B are matrices then $(A + B)^2$ is _____
16. Objects in a set are called _____
17. _____ denotes a set of natural numbers.
18. $D = F(P, A)$ is a _____ function.
19. Area of a triangle is a given by _____
20. When the area of a square is doubled then side increases by _____
21. 1's complement of 10001 is _____
22. In an Half adder, given 2 bits X and Y, sum S = _____
23. A byte contains _____ bits.
24. $(1100110)_2 = (\quad)_{10}$
25. $(45)_{10} = (\quad)_2$
26. $(CAFE)_{16} = (\quad)_{10}$
27. $(11.625)_{10} = (\quad)_2$

28. $(11011)_2 - (10101)_2 = (\quad)_2$
29. 2's complement of 1010 is _____
30. $(10011)_2 = (\quad)$ gray.
31. LSB carries _____ weight.
32. =
- $x = x$ is _____ law.
33. $(563)_8 = (\quad)_{10}$
34. A full subtractor is a _____ circuit.
35. The output of Nand gate is complement of _____ gate.
36. The logic circuits whose output at any instant of time are dependent on not only present inputs but also on past inputs are called _____ circuits.
37. Group of flip flops used to store particular group of 0's and 1's are called _____
38. Mapping many inputs to one output is done by a _____
39. A flip flop has pair of _____ outputs.
40. Backup storage is provided by _____ memory.
41. A logic circuit that accepts one input distributes it over several outputs is a _____
42. _____ is a logic circuit used to add three bits.
43. Excess - 3 code of 354 is _____
44. A translator which translates High Level Language program to Machine Level Language program is _____
45. `stdio.h` has predefined _____ functions.
46. Low level language consists of _____ numbers.
47. Data type format for floating point number is _____

48. The looping statements in C are _____
49. _____ is an example for application software.
50. A function called by itself is called _____ function.
51. Pictorial representation of a program is called _____
52. _____ is an example of high level language.
53. Data is organized in to logical groups called _____ to enable data management.
54. _____ is an application of stacks.
55. Mouse is a _____ device.
56. Step by step depiction of the solution of a problem is called _____
57. The full form of RAM is _____
58. Scanner is essentially a _____ device.
59. The term computer is derived from _____
- 60, _____ is an example for secondary memory.
61. Any one operation on stack is _____
62. FIFO stands for _____
63. _____ tree has exactly two or zero children.
64. Symbol table contains _____
65. EPROM stands for _____ .
66. Output of EXOR gate is one, if both the inputs are _____
67. _____ gate is called inverter.
68. In a SR flip-flop, $S = 1$ and $R = 0$, the flip-flop goes to _____ state.
69. In an Half subtractor, given two bits A and B, borrow $B =$ _____

70. In combinational logic circuits, output depends on _____ inputs.
71. A flip-flop where the slave copies master is called _____
72. Detecting and correcting errors in a program is called _____
73. Syntax errors are detected during _____ process.
74. _____ statement is avoided in structured programming.
75. A truth table for n inputs has _____ combinations.
76. DDL stands for _____
77. C is called _____ language.
78. Bitwise AND operator in C is _____
79. The ? : operator in C is called _____
80. The node at the top of the tree is called _____
-