



**B.Sc (Information Technology) (Part-I)**  
**EXAMINATION, 2007**  
**DATABASE MANAGEMENT SYSTEMS**

Sixth Paper

B.Sc. I.T.-06

Time allowed : Three Hours

Maximum Marks : 50

*Attempt any **five** questions. All questions carry equal marks.*

1. (a) What are the components of a database system? Mention few characteristics of computerized D.B.M.S. 5
- (b) What are the different types of database end users? Discuss the main activities of each. 5

OR

2. (a) Define the terms data definition language and data manipulation language. What is an entity? 5
- (b) What do you mean by a database model? What is data control? 5
- 3 (a) What is an entity relationship diagram? Draw an E-R diagram for an automobile company. 5
- (b) Define the terms aggregation and generalization. How an E-R model is used to design a database? 5

OR

4. (a) What are different types of files? Write a note on Index sequential file organization. 5
- (b) What are different normalization forms? Write a note on BCNF. 5
5. (a) What is a relational model? How are relationships established between different tables? 5
- (b) What do you mean by referential integrity? Write a note on concurrency. 5

OR

6. (a) What are different types of loop structures in FoxPro? Write a small program in FoxPro for adding from 1 to 100. 5
- (b) Write a program in FoxPro to sort elements of an array. 5

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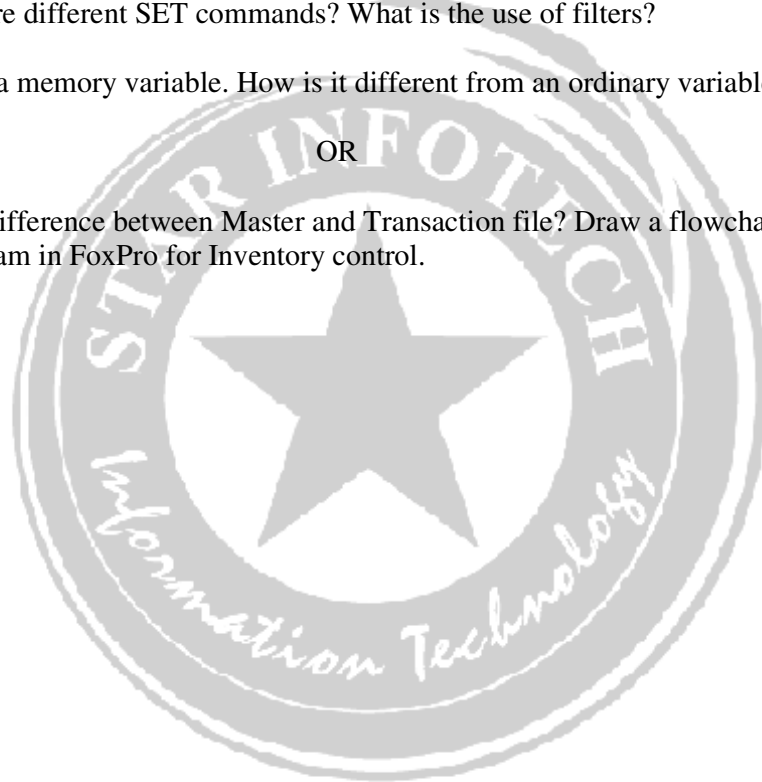
7. (a) What is the difference between SORT and INDEX command? Define different type of datatypes of FoxPro. 5
- (b) Write a program in FoxPro to print the menu for a payroll problem. Also write a module for printing pay slip. 5

OR

8. (a) Explain the following FoxPro commands :  
INPUT REPLACE RECALL SEEK BROWSE 5
- (b) What are different types of functions available in FoxPro? Write a note on procedures. 5
9. (a) What are different SET commands? What is the use of filters? 5
- (b) Define a memory variable. How is it different from an ordinary variable? 5

OR

10. What is the difference between Master and Transaction file? Draw a flowchart and write a program in FoxPro for Inventory control. 10





**B.Sc (Information Technology) (Part-I)  
EXAMINATION, 2007**

**DATA STRUCTURE AND ALGORITHM**

Third Paper

B.Sc. I.T.-05

Time allowed : Three Hours

Maximum Marks : 50

*Attempt any **five** questions. All questions carry equal marks.*

1. (a) Explain the major measures of the efficiency of an algorithm. 5  
 (b) Explain the meaning of the following:  
 (i) Traversing  
 (ii) Sorting  
 (iii) Searching  
 (iv) Inserting  
 (v) Deleting 1\*5=5
  
2. (a) Write a suitable recursive algorithm for printing Fibonacci series up to given limit. 5  
 (b) Write the worst case complexity of the following algorithms in “big-O” notation:  
 (i) Binary Search  
 (ii) Bubble Sort  
 (iii) Radix Sort  
 (iv) Merge sort  
 (v) Heap sort 1\*5=5
  
3. (a) Write an efficient algorithm to multiply two matrices  $A_{m \times n}$  and  $B_{n \times o}$  6  
 (b) Show the use of LIFO and FIFO giving real world examples of each. 4
  
4. Suppose there are two linked lists A & B containing the following data:

<b>A</b>	<b>B</b>
7	6
5	25
3	32
1	11
20	9

Write a function to combine these two lists such that the resulting list contains nodes in the following elements:

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7, 6, 5, 25, 3, 32, 1, 11, 20, 9

You are not allowed to create any additional node while writing the function. 10

5. Write short notes on the following:

- (i) Hashing
- (ii) T.S.P.(Travelling Salesman Problem) 5+5=10

6. Differentiate between the following with example :

- (i) Depth First Search and Breadth First Search
- (ii) Sequential files and Indexed files 5+5=10

7. (a) Explain with diagrams, how B-Tree, D-Queue and Threaded-Tree are presented in memory 6

- (b) Write the prefix and postfix form of the following expression:  
(A + B) \* (C + D - E) \* F 4

8. (a) Explain Dijkstra's algorithm for finding shortest path between two nodes of a graph. 5

- (b) Write appropriate Insertion sort algorithm to sort an Array containing the following 8 elements:  
77, 33, 44, 11, 88, 22, 66, 35. 5

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## OFFICE AUTOMATION PC SOFTWARE

Third Paper

B.Sc. I.T.-03

Time allowed : Three Hours

Maximum Marks : 50

*Attempt any **five** questions. All questions carry equal marks.*

1. (a) What is the role of control panel in Windows? Give names and basic task of various options available in control panel? 7
- (b) Write the uses of Windows Explorer. 3
2. (a) Differentiate between:
  - (i) CUI and GUI. 2
  - (ii) Disk formatting and disk defragment. 2
- (b) Write steps for performing the following operations:
  - (i) Printer installation 3
  - (ii) Changing mouse pointer 3
3. (a) Discuss all the five main ways of viewing document in MS-Word.
- (b) Differentiate between template and a wizard. 6+4
4. (a) Discuss the following parameters of paragraph formatting:
  - (i) alignment
  - (ii) indentation
  - (iii) line spacing
  - (iv) tabs
- (b) Write steps by step procedure for mail merge. 5+5
5. Explain the following terms with reference to MS-Excel:
  - a. Range
  - b. Goal seek
  - c. Relative address and absolute address
  - d. Macro and its uses
  - e. Pivot table and its uses. 1+2+2+2<sup>1/2</sup>+2<sup>1/2</sup>
6. (a) Explain the various statistical, math, financial, date and time functions available in MS-Excel.
- (b) Differentiate between embedding data and pasting data in MS-Excel 7+3



7. (a) What is a presentation? Discuss the various options of creating a new presentation. 6  
 (b) Write steps for inserting a picture in Power-Point. 4
8. Write short notes on the following with reference to Power Point:  
 (a) Formatting and customizing slide presentation  
 (b) Creating a graph 6+4
9. (a) Explain the different keys giving suitable examples  
 (b) Discuss the types of fields available in MS-Access. 5+5
10. (a) Differentiate between forms and reports. 4  
 (b) Write short notes on the following:  
 (i) Multi-table reports  
 (ii) Table relationship and its types. 3+3



**B.Sc (Information Technology) (Part-I)**  
**EXAMINATION, 2007**  
**C-PROGRAMMING**

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Fourth Paper  
B.Sc. I.T.-04  
Time allowed : Three Hours  
Maximum Marks : 50

*Attempt any **five** questions. All questions carry equal marks.*

1. Write a short note on precedence and associativity of operators in C. Explain shift operators with examples.
2. Write program for:
  - (a) To check whether a given number is a perfect number or not?
  - (b) To check whether the given two numbers are amicable number or not?
3. What is the meaning of "promotion and demotion of variable type" ? Explain with suitable example.
4. Write a program to check if the given matrix is magic square or not?
5. (a) "The name of an array is the pointer to its zeroth element." Explain the above statement.  
(b) How one can pass multi-dimensional array as function arguments?
6. Write a program to input a string and output the reverse string. You are not to use array notation to access the characters.
7. Differentiate between:
  - (a) Structure and Union
  - (b) Call By value and Call By reference.
8. Define a structure that will hold data for a complex number. Using this structure write a program that will input to complex number and output the multiply the 2 complex number. Use double variable to represent complex number.
9. Write short notes on :
  - (a) File handling
  - (b) File function
10. Write a program that prompts the user the name of the file and then counts and displays the number of bytes in the file. create a duplicate file with the word 'backup' append to the file name. Check whether the file was successfully opened and display an error message if not.

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**OFFICE AUTOMATION PC SOFTWARE**

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Third Paper  
B.Sc. I.T.-03  
Time allowed : Three Hours  
Maximum Marks : 50

*Attempt any **five** questions. All questions carry equal marks.*

1. (a) Draw the model of digital computer. Also explain the working of C.P.U. 6  
(b) Who is more intelligent--human being or computer? Justify your answer. 4
2. Define application of computers in the following fields:  
(a) Entertainment  
(b) Robotics  
(c) Production  
(d) R & D 2<sup>1/2</sup>\*4=10
3. Explain basic terminology of scanner. Also define the working of the following with examples:  
(a) OMR  
(b) MICR  
(c) BCR  
(d) OCR 10
4. (a) Differentiate between Voice recognition and Optical recognition?  
(b) Explain the concept of machine vision systems. 5+5=10
5. (a) Briefly differentiate between volatile and non-volatile memory with example.  
(b) What is a basic difference between CD and DVD? Explain with the help of diagram. 5+5=10
6. (a) Verify the De-Morgan's theorems by means of truth tables and logic diagrams.  
(b) Differentiate between Share ware and freeware with example. 5+5=10
7. (a) What is flip-flop? Show that a JK flip-flop can be converted to a D flip-flop with an inverter between J & K inputs. 6  
(b) Differentiate between Multitasking operating system and Multiprocessing operating system. 4
8. (a) Explain five negative social concerns of computer technology.  
(b) Define any five precautions to save computer system from viruses. 5+5=10
9. Differentiate between the following:  
(a) VGA and SVGA  
(b) Virtual and Cache memory  
(c) Interpreter and Assembler  
(d) Linker and Loader 2<sup>1/2</sup>\*4=10
10. Write short notes on the following:  
(i) Demultiplexer  
(ii) Bootstrapping  
(iii) BIOS  
(iv) K-MAP. 2<sup>1/2</sup>\*4





**B.Sc. I.T. (Part I) EXAMINATION, 2009**  
**FOUNDATION COURSE IN MATHEMATICS**  
**IN COMPUTING**

First Paper

(B.Sc. IT-01)

Time allowed: Three Hours

Maximum Marks: 50

*Attempt any **five** questions in all, selecting one question from each unit.*

*All questions carry equal marks.*

**Unit I**

1. (a) Convert the number  $(476.275)_8$  into binary and hexadecimal number system.  
 (b) Find 9's complements of decimal number 183.  
 (c) Find radix minus one compliment and radix compliment of  $(74B9)_{16}$ .  
 (d) Perform  $(BAD)_{16} + (432)_{16}$ .
2. (a) Convert the number  $(A09.26)_{16}$  into binary and decimal number system.  
 (b) Find 10's complements of decimal number 75.  
 (c) What do you mean by a radix? How is a number system using radix system  $r$  interpreted.  
 (d) Explain the meaning of 1's and 2's complements with suitable examples.

**Unit II**

3. (a) Define excess-3 code and gray Gray code number systems with suitable example.  
 (b) Convert the binary number  $(1000110111)$  to gray number.  
 (c) Differentiate between BCD and EBCDIC code number system.  
 (d) Explain floating point representation of a number.  
 (e) Convert the numbers  $(11.33)_{10}$  and  $-(1111)_2$  into four digits mantissa system.
4. (a) What is ASCII code number system?  
 (b) Explain error detecting code.  
 (c) What is parity bit? What are two kinds of parity?  
 (d) Encode the decimal numbers 45 and 732 into BCD numbers.  
 (e) Represent the number  $(+47.5)$  with normalized integer mantissa of 13 bits and an exponent of 7 bits, as a binary number.

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### Unit III

5. (a) Explain the conditional proposition with its truth table of two statements. Show with the help of truth table that:

$$p \vee q \rightarrow r \equiv (p \rightarrow r) \wedge (q \rightarrow r)$$

- (b) Define contrapositive, converse and inverse of a universal conditional proposition. Write contrapositive, converse and inverse of a universal conditional proposition of the following statement:

Informal: If a real number is greater than 2, then its square is greater than 4.

6. (a) Show that the compound statement  $(p \wedge q) \wedge \sim (p \vee q)$  is a contradiction.  
 (b) Show that the statement  $pop$  is logically equivalent to  $p$ .  
 (c) Construct the truth table of the following compound proposition:

$$\sim (p \vee (q \wedge r)) \leftrightarrow ((p \vee q) \wedge (p \vee r))$$

### Unit IV

7. (a) Find the complement of the following function by De Morgan's law and by taking dual:

$$F_1 = x.(y' . z' + y . z)$$

- (b) Let T be the set of triangles in a plane and R is defined as:

$$R = \{(a,b) \mid a, b \in T, a \text{ is congruent to } b\},$$

then show that R is an equivalence relation.

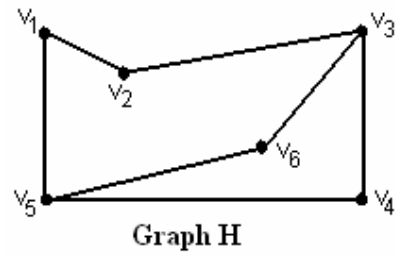
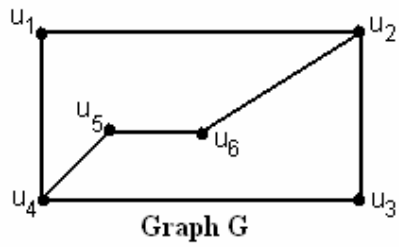
8. (a) Show that an inverse relation of an equivalence relation on a non empty set A is also an equivalence relation on A.  
 (b) If  $(a, b) \in R$  and  $(b, c) \in R$   $(c, a) \in R$ , then show that relation is reflexive and circular if, and only if it is reflexive, symmetric and transitive.

### Unit V

9. Explain the following types of graphs with suitable illustration:

- (i) Undirected graph
- (ii) Digraph
- (iii) Weighted graph
- (iv) Planar graph
- (v) Multi graphs.

10. (a) Define isomorphism of graphs. Determine whether the following two graphs, G and H, are isomorphic:



(b) Explain the role of graphs in local area network (LAN) and parallel processing.

