



B.Sc. (Information Technology) (Part I)
Examination, 2011
COMPUTING LOGICS AND REASONING
First Paper
(B.Sc. I.T-01)

Time allowed: Three Hours

Maximum Marks : 50

Part – A (Compulsory) (Marks : 10)

Answer all ten questions (20 words each).

Each question carries equal marks.

Part – B (Compulsory) (Marks : 10)

Answer all five questions (50 words each).

Each question carries equal marks.

Part – C (Marks : 30)

Answer all three questions (400 words each).

Each question carries equal marks.

Part – A

1. Define POSET.
2. What is Bijection Mapping?
3. Convert 1110011 into gray code.
4. Find 1's and 2's complement of 1100011.
5. Define set and explain tabular form and set builder form.
6. Define equivalence relation.
7. Define symmetric difference with example.
8. What is inverse and converse of $p \rightarrow q$.
9. Explain supremum and infimum.
10. Find domain and range of relation R.

$$R = \{(1, a) (1, b) (2, b) (1, c) (2, c) (2, d)\}$$

Part – B

1. Prove that the biconditional statement.
 $\sim(p \leftrightarrow q)$ is equivalent to $\sim p \leftrightarrow q$ using truth table.
2. Define union and intersection of two set.
Find union and intersection of the given two sets:
 $A = \{1, 2, 3, 4, 5\}$ $B = \{3, 5, 6, 7\}$
And draw Venn Diagram
3. If f and g are the functions in R defined by
 $f(x) = x^2$

$$g(x) = x+1$$

then find

$$f \circ g(x)$$

$$g \circ f(x)$$

$$g \circ g(x)$$

$$f \circ f(x)$$

4. Prove that the statement $(p \rightarrow q) \leftrightarrow (\sim q \rightarrow \sim p)$ is a tautology.
5. Define ASCII, EBCDIC, BCD and gray code.

Part – C

1. If R is an equivalence relation in a set A then R^{-1} is also an equivalence relation in A .

OR

Convert

- a. $(102)_{10}$ to its octal equivalent
- b. $(125.48)_{10}$ to its binary equivalent
- c. $(4123)_8$ to its decimal equivalent
- d. $(A34)_{16}$ to its decimal equivalent
- e. $(2516)_{16}$ to its octal equivalent
- f. $(545)_6 \rightarrow (?)_4$

2. (a) Obtain DNF of the form

$$(p \rightarrow q) \wedge (\sim p \wedge q)$$

- (b) Obtain CNF of the form

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

- (c) Obtain PDNF of

$$p \rightarrow [(p \wedge q) \wedge \sim(\sim q \vee \sim p)]$$

OR

Prove:

- (a) $R = \{(1, 1) (1, 3) (2, 2) (2, 4) (3, 1) (3, 3) (4, 2) (4, 4)\}$

That R is an equivalence relation.

- (b) A relation R_1 defined on the set R of real numbers, given below is reflexive and symmetric.

$$R_1 = \{(a, b) : 1 + ab > 0, a, b \in R\}$$

3. A survey of 550 television watchers produced the following information:

285 watch football games.

195 watch hockey games.

115 watch baseball games.

45 watch football and baseball games.

70 watch football and hockey games.

50 watch hockey and baseball games.

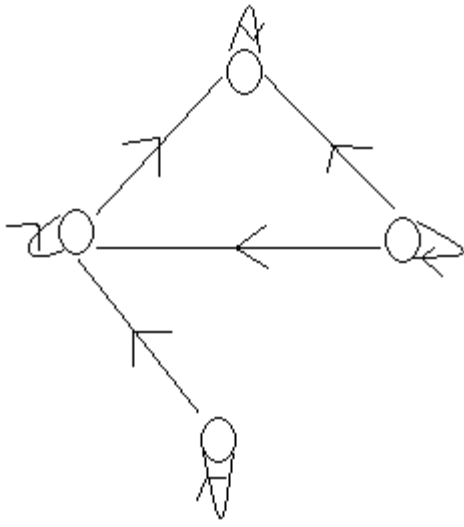
100 do not watch any of the three games.

- (a) How many people in the survey watch all three games.

- (b) How many people watch exactly one of the three games.

OR

Determine the Hasse diagram of the partial order having the directed graph as shown below



Also find

- (a) LUB
- (b) GLB
- (c) Maximal elements
- (d) Minimal elements

B.Sc. (Information Technology) (Part I)
Examination, 2011
DATABASE MANAGEMENT SYSTEMS

Sixth Paper

(B.Sc. I.T-06)

Time allowed: Three Hours

Maximum Marks : 50

Part – A (Compulsory) (Marks : 10)

Answer all ten questions (20 words each).

Each question carries equal marks.

Part – B (Compulsory) (Marks : 10)

Answer all five questions (50 words each).

Each question carries equal marks.

Part – C (Marks : 30)

Answer all three questions (400 words each).

Each question carries equal marks.

Part – A

1. What is data abstraction?
2. What is data definition language?
3. What are extension of these files:
 - i. Screen file
 - ii. Memo file
4. What is the use of .mem file?
5. What is mapping cardinalities?
6. What is General data types in foxpro?
7. Define instance?
8. How to create one or two diamansional array of memory variables?
9. What is data incosistency?
10. What is difference between accept and input command?

Part – B

1. Draw the ER-diagram for banking enterprise branch
Branch(branch-name, branch-city, assets)
Customer (Social-security, customer-name, customer-street)
Loan (loan-number, amount)
Payment (payment-number, payment-date, payment-amount)
2. Differentiate.
 - i. Find and seek command
 - ii. ?? and ??? command
3. What is triple relational calculus?
4. What is referential integrity?

5. What do you understand by database security? Explain security measures at several levels.

Part – C

1. What is Normalization? Explain each up to DKNF.

OR

What is recovery? Explain the Aries recovery technique.

2. What is difference between indexing and sorting? Explain each type of indexing.

OR

What are features of Foxpro report? What is difference between quick and custom report. Create a custom report on table sales(month, salesman, product,quantity). Group the data month wise.

3. What is Serializabilty? Explain conflict and view serializability.

OR

What is work area? What is role of set relation command? Write a program to establish multiple relation in following table.

Master (code, name, address, city)

Loan (code, loan-code, amount, rate, date)

Payment (loan-code, amt-paid, date)

And update one record in it.

B.Sc. (Information Technology) (Part I)
Examination, 2011
C- PROGRAMMING & DATA STRUCTURE

Fourth Paper

(B.Sc. I.T-04)

Time allowed: Three Hours

Maximum Marks : 50

Part – A (Compulsory) (Marks : 10)

Answer all ten questions (20 words each).

Each question carries equal marks.

Part – B (Compulsory) (Marks : 10)

Answer all five questions (50 words each).

Each question carries equal marks.

Part – C (Marks : 30)

Answer all three questions (400 words each).

Each question carries equal marks.

Part – A

1. What is structure?
2. What is tree?
3. What is d-queue?
4. What is derived data type?
5. Give prefix for the following $(a \wedge b | c + d | e)$.
6. Give syntax for 'fopen' and 'fclose'.
7. What is recursion?
8. What is sorting?
9. What do you mean by 'malloc' and 'calloc'?
10. What is pointer?

Part – B

1. Write a program to convert 3 digit decimal value in binary?
2. What is doubly link list? Write an algorithm to create the doubly link list.
3. Write an algorithm bubble sort.
4. What is the difference between DFS and BFS?
5. What do you mean by threaded-tree?

Part – C

1. (a) What is travel salesman problem? Explain through example.
(b) Explain what is operator. How many types of operators are there in 'C' language?
OR
(a) What is function in 'C'? Explain 'call by value' and 'call by reference' method.
(b) Write an algorithm for merge sort?
2. Write short note on the following:

- i) Prefix
- ii) Union
- iii) Loop

OR

Write a short note on the following:

- i) File Handling
 - ii) Graphs
 - iii) Dynamic data structure.
3. Explain shortest path algorithm.

OR

Explain Kruskal algorithm.



**B.Sc. (Information Technology) (Part I)
Examination, 2011**

FOUNDATION COURSE IN I.T.

Second Paper

(B.Sc. I.T-02)

Time allowed: Three Hours

Maximum Marks : 50

Part – A (Compulsory) (Marks : 10)

Answer all ten questions (20 words each).

Each question carries equal marks.

Part – B (Compulsory) (Marks : 10)

Answer all five questions (50 words each).

Each question carries equal marks.

Part – C (Marks : 30)

Answer all three questions (400 words each).

Each question carries equal marks.

Part – A

1. What is Hybrid computer?
2. List five input devices?
3. Explain user interface?
4. What is Worm?
5. What is memory hierarchy?
6. Subtract 23 from 51 using 2's complement?
7. What is web browser?
8. What is logic gate?
9. Draw the truth table of $(x+y).(y'+z).(x+z)$.
10. What do you mean by computer display?

Part – B

1. What are various application of computers?
2. What are various types of printers?
3. What do you mean by a gray code? Write down 3-bit gray code?
4. What is data warehouse? What are its components?
5. What is internet? Explain web standard?

Part – C

1. Map the function having four variables in a Karnaugh's map. The function is $F(A, B, C, D) = \sum(2, 6, 8, 9, 10, 13, 14)$. Find the optimal logic expression for the above function. Draw the resultant logic diagram?

OR

What is Number system? Convert the following:

- i) $(45)_8 \rightarrow ()_{16}$
- ii) $(10011010)_2 \rightarrow ()_8$

iii) $(7FDE)_{16} \rightarrow ()_{10}$

iv) $(23.45)_{10} \rightarrow ()_2$

v) $(234)_8 \rightarrow ()_{10}$

2. What are various types of Drivers? Explain in detail?

OR

What do you mean by computer code? Explain in detail?

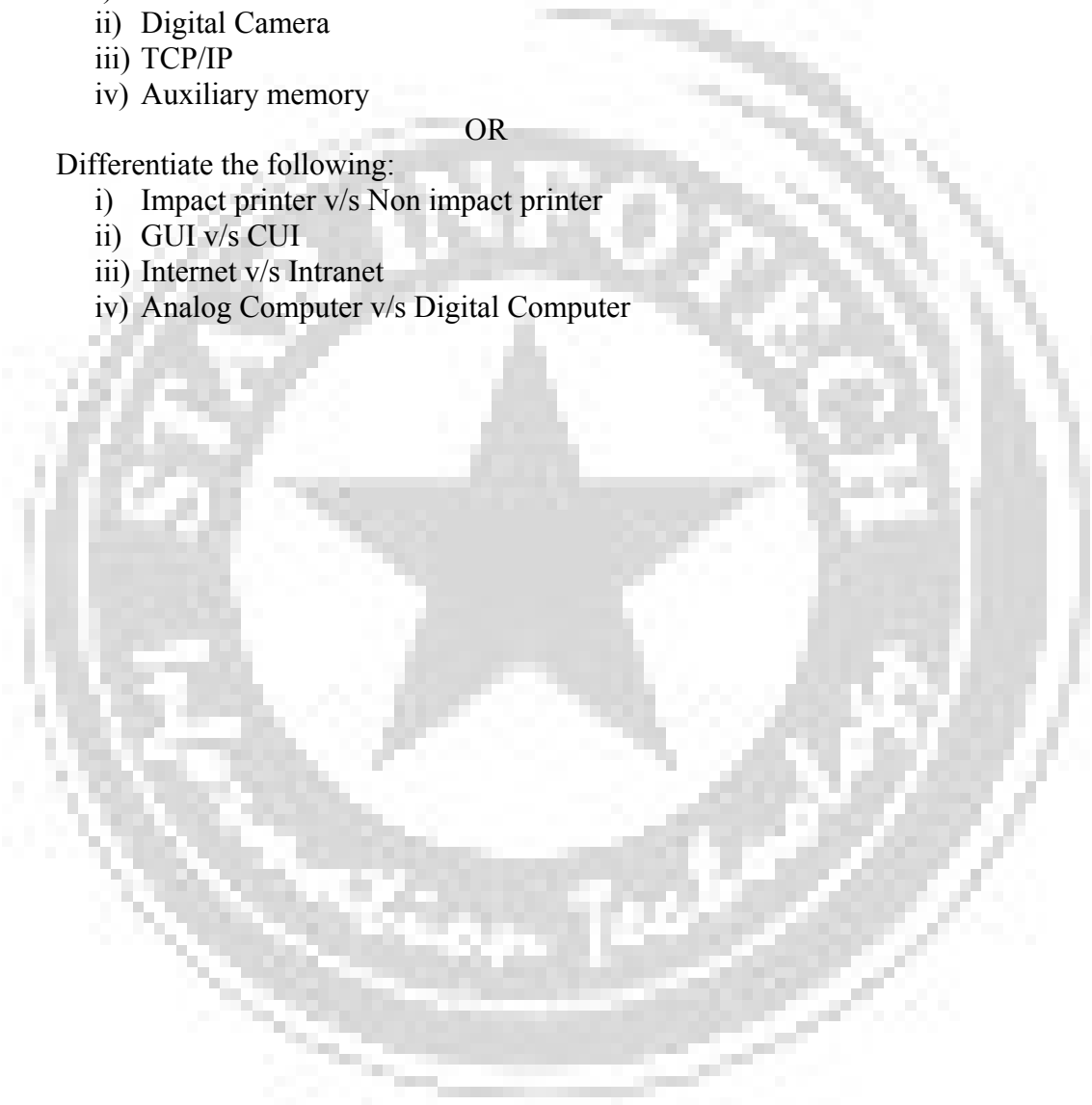
3. Write short note on the following:

- i) Scanner
- ii) Digital Camera
- iii) TCP/IP
- iv) Auxiliary memory

OR

Differentiate the following:

- i) Impact printer v/s Non impact printer
- ii) GUI v/s CUI
- iii) Internet v/s Intranet
- iv) Analog Computer v/s Digital Computer



B.Sc. (Information Technology) (Part I)
Examination, 2011
OFFICE AUTOMATION PC SOFTWARE

Third Paper

(B.Sc. I.T-03)

Time allowed: Three Hours

Maximum Marks : 50

Part – A (Compulsory) (Marks : 10)

Answer all ten questions (20 words each).

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Part – B (Compulsory) (Marks : 10)

Answer all five questions (50 words each).

Each question carries equal marks.

Part – C (Marks : 30)

Answer all three questions (400 words each).

Each question carries equal marks.

Part – A

1. Write an advantage of GUI.
2. What are the advantages of screen saver?
3. How can you change system time zone?
4. What is the use of utility software?
5. Write use of ruler-line in M.S. Word.
6. How many cells, rows, columns have in a worksheet?
7. How can you delete a tool from a toolbar?
8. Explain any five functions in excel.
9. Write use of change case option in MS-Word.
10. Write short-cut of delete a slide from the power point presentation.

Part – B

1. How can you create a pivot tables in M. S-Excel?
2. How can you create a custom view in power-point?
3. Explain standard toolbar with all its buttons in MS-Word.
4. Write steps of add new fonts in a computer system.
5. Write short note on conditional formatting.

Part – C

1. (a) What is GUI concept? What are the major software components on control panel? Explain brief.
(b) What is the purpose of window explorer? Explain, how to open folders through explorer?

OR

- (a) What techniques are used for mail merge? What do you understand by mail merge helper? Explain various steps in involved in its use.

(b) Distinguish between protecting documents and adding password to the document.

2. (a) Differentiate between the terms template and wizard?
(b) How many views are available in M.S Word? Explain each of them.

OR

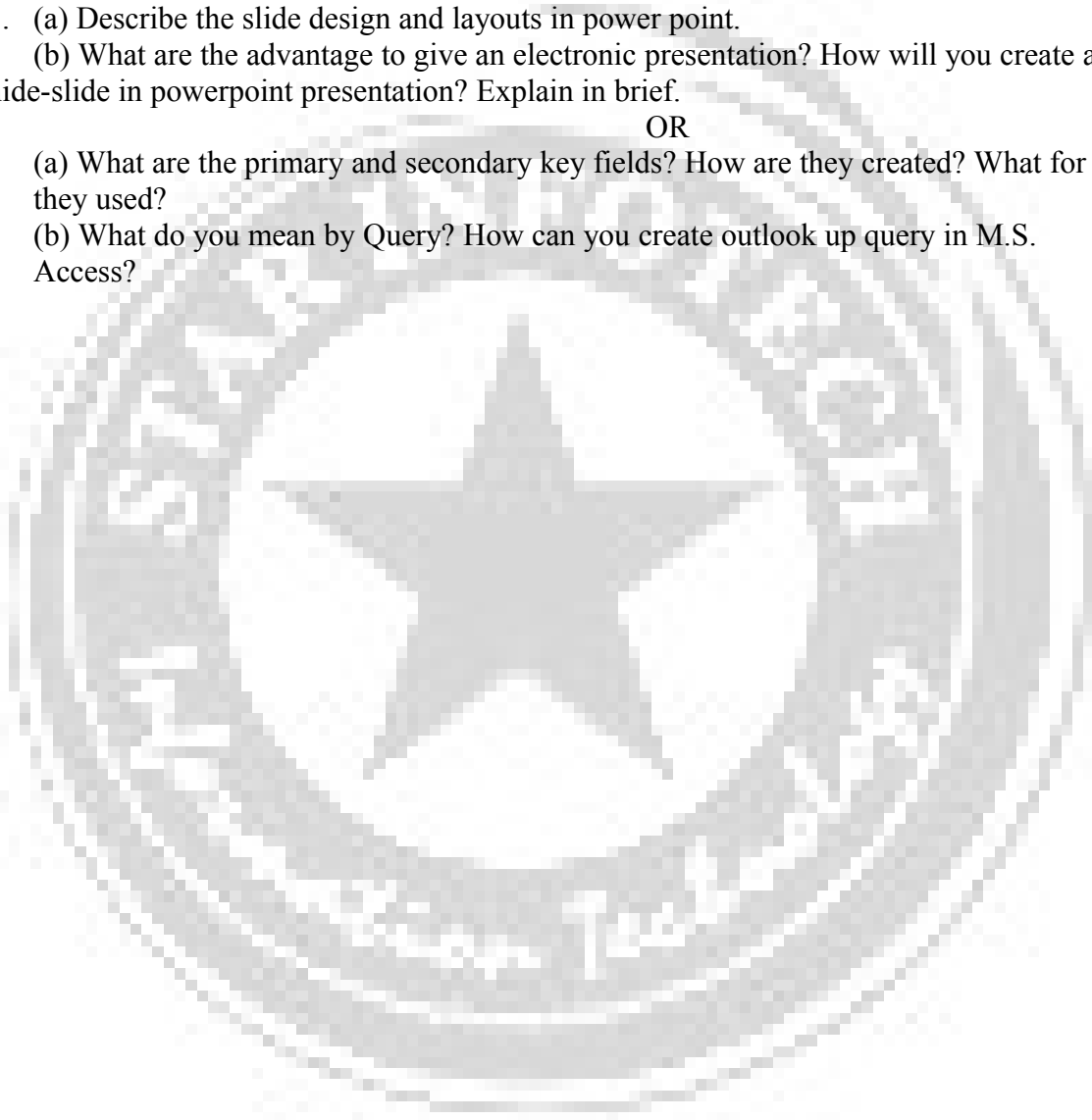
What is worksheet? How would you enter information in a worksheet? Explain the different types of text and number formats available in Excel.

3. (a) Describe the slide design and layouts in power point.
(b) What are the advantage to give an electronic presentation? How will you create a hide-slide in powerpoint presentation? Explain in brief.

OR

(a) What are the primary and secondary key fields? How are they created? What for they used?

(b) What do you mean by Query? How can you create outlook up query in M.S. Access?



B.Sc. (Information Technology) (Part I)
Examination, 2011
CIRCUIT ANALYSIS & ELECTRONIC
DEVICES
Fifth Paper
(B.Sc. I.T-05)
Time allowed: Three Hours
Maximum Marks : 50

Part – A (Compulsory) (Marks : 10)

Answer all ten questions (20 words each).
Each question carries equal marks.

Part – B (Compulsory) (Marks : 10)

Answer all five questions (50 words each).
Each question carries equal marks.

Part – C (Marks : 30)

Answer all three questions (400 words each).
Each question carries equal marks.

Part – A

1. Convert $(200)_{10}$ into binary.
2. Convert $(59.4375)_{10}$ into binary.
3. Convert $(ABCD)_{16}$ INTO BINARY.
4. Subtract 100111 from 110011 .
5. Convert $(7423)_8$ into binary.
6. Give truth table for NOR gate.
7. Write 342 to BCD code.
8. Give symbol of Exclusive or gate.
9. Define sequential circuit.
10. Which two gates are known as universal building blocks?

Part – B

11. Prove following with Boolean Algebra.
 $A + (B.C) = (A+B). (A+C)$
12. Give characteristics curve (input and output) for a transistor in CE configuration.
13. What is Decoder?
14. What do you understand by registers?
15. Draw circuit diagram of J-K Flip Flop.

Part – C

16. Describe a clocked R-S Flip-Flop. How does the trigger pulse controls the change of state Flip-Flops.
17. Describe the operation of Full Adder. What is a parallel adder?

18. Draw circuit diagram of NPN transistor in CB configuration and describe the input and output characteristics curve for it.

