



B.Sc.-IT (Part I) EXAMINATION, 2010

Computing Logics And Reasoning

Time allowed : Three Hours

Maximum Marks : 50

Part-A {Marks:10}

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

Part-B {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. Determine the power set of $A = \{a, b, c\}$.
2. State associative mapping.
3. Define Dual order.?
4. Define Rational numbers?
5. What is the contra positive of $p \rightarrow q$?
6. Give the truth table of logical implication.
7. define onto function.
8. Define compound preposition.
9. Determine which of the following sets are finite and why?
10. Convert 10111 to its gray code.

Part-B

1. Draw Venn Diagram of the given sets.
 - (i) $A \cap B^c$
 - (ii) $(B/A)^c$
2. What is the difference between equivalent and equal set?
3. Using Boolean Algebra, prove that $p \wedge q \rightarrow p$ is a tautology?
4. If f and g be functions in R defined by $f(x) = x+1$ and $g(x) = x^2+2$ then find :
 - (i) $g \circ f(-2)$

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- (ii) $\text{fog}(-2)$
- (iii) $\text{gof}(x)$
- (iv) $\text{fog}(x)$

5. Show that

$$\neg(p \vee q) \vee (\neg p \wedge q) = \neg p$$

Part-C

1. what is Hasse diagram ? Draw the Hasse diagram of

$A = (\{2,4,6,9,12,18,27,36,48,60,72\};/)$ find out

- (i) Maximal elements
- (ii) Minimal elements
- (iii) LUB of $\{2,9\}$
- (iv) GLB of $\{60,72\}$

OR

Two relations R and R in $N \times N$ are defined as follows :

$$(a,b) R_1 (c,d) \leftrightarrow a+b = b+c$$

$$(a,b) R_2 (c,d) \leftrightarrow ad = bc$$

Prove that R1 and R2 are equivalence relation.

- 2. (i) If $f : A \rightarrow B$ and $g : B \rightarrow C$ are two invertible then show that gof is invertible.
- (ii) Prove that the composition of function is associative.

OR

Prove the Demorgan Law by Venn diagram and by the principle of extension.

$$(A \cup B)' = A' \cap B'$$

$$(A \cap B)' = A' \cup B'$$

- 3. In a survey of 60 people, it was found that 25 read Newsweek magazines, 26 reads Time, 26 read fortune, 9 read both Newsweek and time. 8 read both time and fortune, and 3 read all three magazine. Find the number of people who do not read the three magazines? And find the number of people who do not read the three magazines. And find the number of people who read exactly one magazine?

OR

Let $U = \{1, 2, 3, 4, 5, 6, 7, 8, 9\}$

$$A = \{1, 2, 4, 6, 8\}$$

$$B = \{2, 4, 5, 9\}$$

$$C = \{x/x \text{ is a positive integer and } x^2 \leq 16\}$$

$$D = \{7, 8\}$$

Then compute

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(a) $A - B$

(c) $A \oplus B$

(e) $A \cap (\bar{C} \cup D)$

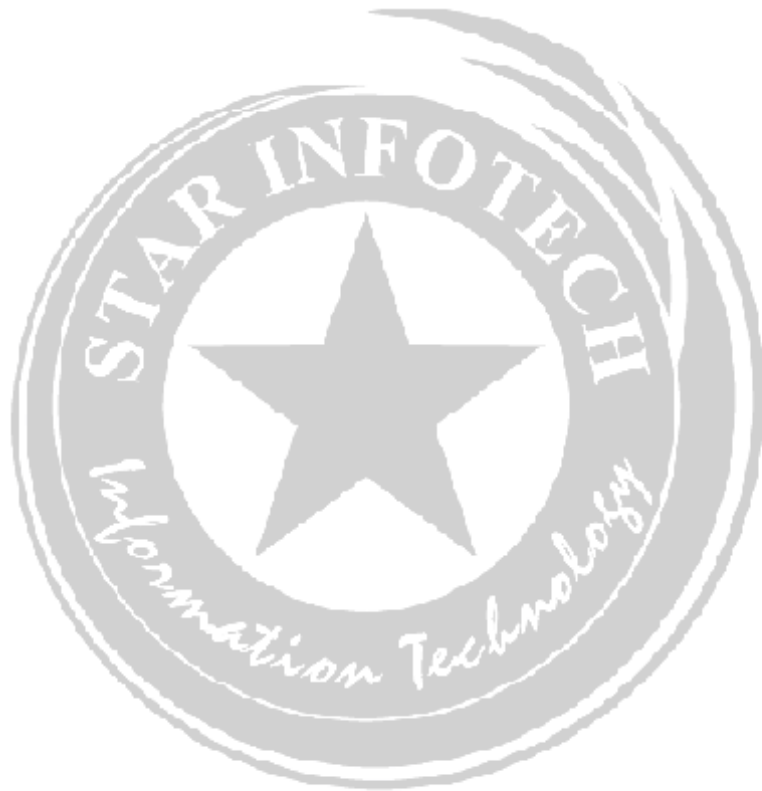
(g) $\overline{A \cup B}$

(b) $C - D$

(d) $B \oplus C$

(f) $\overline{A \cap B}$

(h) Power Set of C





B.Sc.-IT (Part I) EXAMINATION, 2010
FOUNDATION COURSE IN I.T.

Second Paper

Time allowed : Three Hours

Maximum Marks : 50

Part-A {Marks:10}

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

Part-B {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 a cache memory ?
2. What is an Input Interface ?
3. What is the difference between a positional and a non-positional number system?
4. Differentiate between RAM and ROM?
5. List out five pointing devices?
6. What do you understand by website and webpage?
7. What is computer virus?
8. Subtract $(01101111)_2$ from $(110111011)_2$?
9. What is an e-mail?
10. What is data warehouse?

Part-B

1. What is EXCESS-3 code?
2. What is off-line data entry device?
3. Differentiate between system software and application software.
4. Write the advantages of Internet ?
5. What do you mean by TCP/IP?

Part-C

1. Draw a block diagram of a digital computer system and explain the functions of each block. (10)

OR

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Discuss Generations of computer in brief.

10

2. How many types of printers are available in the market ? Discuss in detail. Write the suitability of various types of printers in different application areas.

10

OR

Convert the following :

(i) $(AF2)_{16} \Rightarrow (?)_2$

(ii) $(724)_8 \Rightarrow (?)_{10}$

(iii) $(111011.01)_2 \Rightarrow (?)_{16}$

(iv) $(102.25)_{10} \Rightarrow (?)_2$

(v) $(2417)_{10} \Rightarrow (?)_8$

2x5 =10

3. What are web crimes? Explain different types of computer viruses.

10

OR

Write short notes on the following :

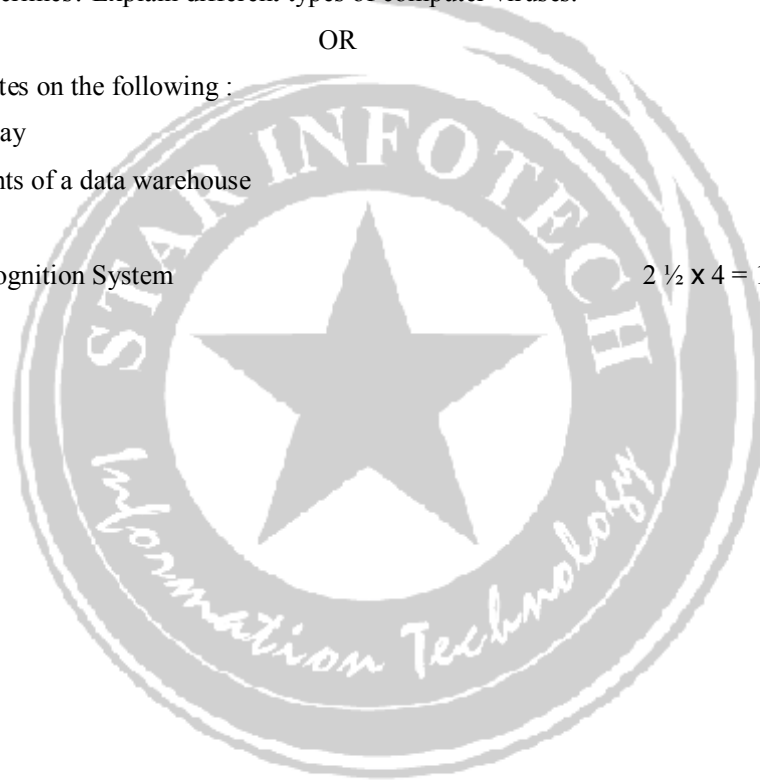
(1) CRT display

(2) Components of a data warehouse

(3) Digitizer

(4) Voice-recognition System

2 ½ x 4 = 10





B.Sc.-IT (Part I) EXAMINATION, 2010

Office Automation PC Software

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Part-A {Marks:10}

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Part-B {Marks:10}

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Part-C {Marks:30}

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

Part-A (1 x 10 = 10)

1. What is GUI?
2. What is control panel?
3. What is task bar?
4. What is status bar?
5. What is short cut key of copy command?
6. What is difference between copy and cut command.
7. What are text effects.
8. What is the use of toolbars?
9. What do you mean by database?
10. What do you mean by word wrap?

Part-B (2 x 5 = 10)

1. What do you mean by paragraph formatting?
2. How will you apply effects on text in MS-Word?
3. What do you mean by formula? What is the use of formulas?
4. What is PowerPoint? How will you create presentation?
5. How will you create tables in MS-Word? What is the use of these tables?

Part-C (3 x 10 = 30)

1. (a) What do you mean by charts? Explain different types of charts available in MS-Excel. Also write the steps for chart creation. (10)

OR

What do mean by database? Explain the following in reference to MS-Access.

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- (a) Tables
 - (b) Reports
 - (c) Queries
 - (d) Forms
2. Explain the different options available in control panel with their use.
- OR
- Explain different options available for sorting and searching of records in database.
3. What do you mean by 'Macros'? Explain their use through proper example.
- OR
- Explain different types of relationships supported by MS-Access. Use proper examples for your support.





B.Sc.-IT (Part I) EXAMINATION, 2010

Circuit Analysis & Electronic Device

Time allowed : Three Hours

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Part-A {Marks:10}

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Part-B {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

Perform the following conversions:

1. $(326)_{10} = ()_2$ 1
2. $(3786)_{10} = ()_{16}$ 1
3. $(B4C)_{16} = ()_8$ 1
4. $(101101101)_2 = ()_8$ 1

Do the following (from question no. 5 to 6).

5. 10111×1011 1
6. $10010000 / 1100$ 1
7. Draw a digital signal and compare it with an analog signal. 1
8. What is BCD code? 1
9. List the truth table of the function
 $F = xy'z + x'y'z + xyz$ 1
10. Simplify the algebraic expression using Boolean algebra
 $F = xy'z + x'y'z + xyz$ 1

Part-B

11. Explain Gray Code? 2
12. What are active low and active high signals? Explain. 2
13. What is exclusive OR circuit? Write its Boolean expression. 2
14. Explain the principle of operations of a semi conductor diode in short. 2
15. Explain k-maps. 2

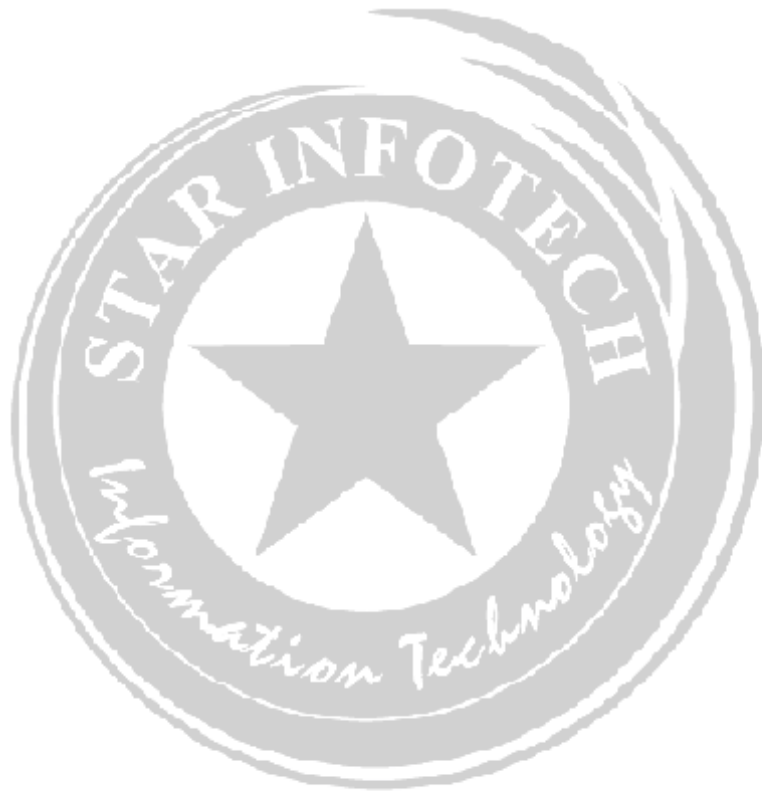
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Part-C

16. (a) Draw the block diagram of a half adder and explain its functioning. 5
(b) What is multiplexer? Explain its working with an example. 5
17. (a) Distinguish between a decoder and de-multiplexer. Explain the working of a 3 to 8 decoder. 5
(b) What is a flip-flop? Write the truth table of a JK flip flop. 5
18. (a) What are D & T flip flops? Write down their characteristics & excitation tables. 5
(b) What is a register? Draw a block diagram of 4 bit register & explain its working. 5





B.Sc.-IT (Part I) EXAMINATION, 2010

Database Management System

Time allowed : Three Hours

Maximum Marks : 50

Part-A {Marks:10}

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

Part-B {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?
2. What is DBMS?
3. What is relation?
4. Define schema.
5. Define DBA.
6. What is super key?
7. Write the input command in FoxPro.
8. What is normalization?
9. What do you mean by procedural language?
10. Define data independence.

Part-B

1. Explain the difference between primary key and super key.
2. Explain data models.
3. Describe the integrity rules in RDBMS.
4. Write the function available in FoxPro for returning the database file name.
5. Write the functions performing by DBA.

Part-C

1. (a) Write the advantages of DBMS. (5+5)
(b) Write the aggregate functions of relational algebra.

OR

- (a) Describe the architecture of Database in detail. (5+5)

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- (b) Explain index sequential file organization.
2. What is transaction? Explain all the states (properties) of transaction. (10)
- OR
- What is serializability? Explain with example. (10)
3. Write short note on any two of the following: (5+5)
- (a) Tuple calculus.
 - (b) Function and procedure.
 - (c) Two phase locking protocol.
 - (d) Generalization and specialization.

