

B.Sc. IT (Part I) Examination, 2012

COMPUTING LOGICS AND REASONING

Part A (Marks: 10)

1. Define well order set.
2. Define recursions.
3. What is subjective mapping?
4. Find 1's and 2's complement of binary number y , where $y = 10101010_2$.
5. Find fixed point representation for the decimal number $3.056E-5$.
6. Define lattice.
7. What is inverse and converse of $\sim p \rightarrow \sim q$.
8. Convert $(111001100)_2$ into decimal form.
9. Define least and greatest element.
10. Divide $(1A05)_{16}$ by $(A8)_{16}$.

Part B (Marks: 10)

1. Prove that for a bounded distributive lattice L , the complements are unique if they exists.
2. Consider the function $f, g : \mathbb{R} \rightarrow \mathbb{R}$.

$$f(x) = x^2 + 3x + 1$$

$$g(x) = 2x - 3$$

Find the composition functions

- (i) $f \circ f$ (ii) $f \circ g$

3. Write the following sets in builder form.

$$A = \{2, 4, 6, 8, 10, 12, 14\}$$

$$B = \{3, 6, 9, 12, 15, 18, \dots\}$$

4. Subtract $(1011)_2$ from $(1100)_2$.
5. Construct a truth table for the proposition $\sim(p \wedge \sim q)$.

Part C (Marks: 30)

1. In a survey of 300 students:
 - 64 had taken Mathematics course.
 - 94 had taken English course.
 - 58 had taken a Computer course.
 - 28 had taken both Mathematics and Computer.
 - 26 had taken both English and Mathematics.
 - 22 had taken both English and Computer.
 - 14 had taken all three courses.
 - (a) How many students were surveyed who had taken none of the three courses?
 - (b) How many had taken only Computer course.

OR

Define the following:

- (a) Homomorphism
 - (b) Matrix representation and diagraph
 - (c) Partial order and total order set.
 - (d) Upper and Lower bound.
2. (a) Explain error detecting and error correcting code.
 - (c) Explain BCD as a weighted code.

OR

- (a) Show that $(p \wedge q) \Rightarrow p$ is a tautology.
- (b) State and prove De-Morgan's law.
- (c) Construct a truth table for the following compound proposition $(p \Rightarrow q) \wedge (\sim p \Leftrightarrow q)$.
- (d) Verify the following property of implication
$$\sim(p \Rightarrow q) \equiv (p \wedge \sim q)$$

3. Prove that the relation R on the set $N \times N$ defined by $(a, b) R (c, d) \Leftrightarrow a + b = b + c$ for all $(a, b), (c, d) \in N \times N$ is an equivalence relation.

OR

- (a) Convert $(1024)_{10}$ into binary form.
- (b) $(.6875)_{10}$ to the binary form.
- (c) Convert $(295)_{10} = (?)_8$.
- (d) Convert $(1632.23)_8$ into decimal.
- (e) Convert the decimal number 10292 to the hexadecimal form.

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FOUNDATION COURSE IN I.T.

Part A (Marks: 10)

1. What is data processing?
2. Write name of computer which was made in first generation computer.
3. Divide $(01101111)_2$ by $(0111)_2$.
4. What is the UPC?
5. Why NAND and NOR gates are called universal gates?
6. Convert 9568 into Excess-3 code.
7. What is FTP?
8. What is www browser?
9. Prove $(x'' = x)$ theorem by perfect induction method.
10. What is worm?

Part B (Marks: 10)

1. What is cache memory? How it is different from a primary memory?
2. Find decimal equivalent of hexadecimal number 2B.C14.
3. A computer has 512 MB of memory. How many characters can be stored in its memory at a time?
4. What are point and draw devices? Name some commonly used point and draw devices.
5. A disk pack consists of 6 disk plates. Each plate has 400 tracks and there are 50 sectors per track. If 512 bytes can be stored per sector, calculate its total storage capacity.

Part C (Marks: 30)

1. Draw a block diagram of a computer system and explain the functions of the various units.

OR

What are logic gates? Explain different types of logic gates with diagram.

2. (a) Why laser printer is more suitable than the inkjet printer? Justify your answer.
(b) What is DVD? Differentiate between CD-R and CD-RW disks.

OR

(a) Explain classification of computers.

(b) Write short notes on the following:

- a. Web Camera
- b. Digitizer
- c. MICR
- d. Plotter

3. What are the different types of viruses? How do viruses spread?

OR

What is data warehouse? Write the different methods using storing data in data warehouse.

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OFFICE AUTOMATION PC SOFTWARE

Part A (Marks: 10)

1. What is extension of a database file in MS-Access?
2. Write a standard width of a cell.
3. What do you mean by text editor?
4. Write use of auto correct.
5. What is left indent?
6. What is use of sound clip in MS-PowerPoint?
7. What is the use of redo command in MS-Word?
8. What is slide in PowerPoint?
9. What is auto fill in MS-Excel?
10. Write the use of conditional formatting.

Part B (Marks: 10)

1. Explain cylinder chart in MS-Excel.
2. Explain slide from file in MS-PowerPoint.
3. Differentiate between primary key and foreign key.
4. Write difference between scandisk v/s disk defragment.
5. Write steps of inserting music or sound on a slide.

Part C (Marks: 30)

1. (a) What is GUI concept? What are the major software components on control panel?
Explain in brief.

(c) Explain the various managerial function of MS-Word.

OR

(a) Explain the following in MS-Word.

- a. Mirror Margins
- b. Headers and footers
- c. Ruler Bar
- d. Word Wrap

(b) Suppose you want to send the same letter to 100 people. Which option of MS-Word you will choose to perform this? Give the step-by-step procedure.

2. (a) How many views are available in MS-Word? Explain each of them.

(c) What are the different views available in MS-Excel? Explain the purpose of each of these.

OR

(a) What is pivot table? Detail the procedure to create pivot table.

(b) Explain different types of chart in excel. Explain the concept of macros.

3. (a) Explain absolute, relative and mixed cell reference feature of MS-Excel.

(c) Explain the steps in creation of graphs in MS-Excel.

OR

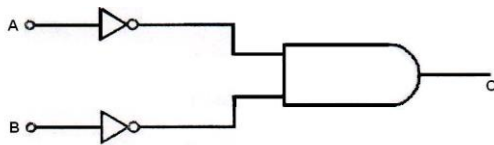
(a) How Many to Single and Single to Many relations are created in Access? How can you create Auto Lookup query in MS-Access?

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CIRCUIT ANALYSIS & ELECTRONIC DEVICE

Part A (Marks: 10)

1. Write binary numbers corresponding to following decimal number:
(a) 15 (b) 242
2. Convert octal number 25.634 to its binary equivalent.
3. Write the truth table for XOR gate.
4. Convert F8E6.39 hexadecimal number to its equivalent decimal number.
5. Write hexadecimal equivalent for 4096 decimal.
6. What is the condensed word for binary digit?
7. Write the truth table for the following logic circuit:



8. Add 10111 with 10011.
9. Give truth table of NAND gate.
10. Multiply 1101 with 111.

Part B (Marks: 10)

1. Convert .85 to its binary equivalent.
2. Write basic OR gate rule for single variable.
3. Draw the logic circuit which represents the Boolean equation $Y = AB'C + ABC'$
4. Define full-adder.
5. Define D Multiplexer.

Part C (Marks: 30)

1. (a) Describe switching characteristic of semiconductor diode.
- (b) Describe half adder with its logic diagram and truth table.

OR

- (a) How will you connect NAND gates to get an OR gate?
- (b) Define a k-map. Illustrate your answer by one example.

2. Describe J-K flip flop with its block symbol, truth table. What is D type Flip-Flop?

OR

- (a) Explain switching action of transistor.
- (b) Describe multiplexer. Draw circuit diagram for 2 bit by 2 bit multiplexer.

3. Write short note on following:

- (a) Various code converters
- (b) Registers

OR

Write short notes on following:

- (a) Procedures and user defined functions for FoxPro program.
- (b) Printing formatted reports.

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DATABASE MANAGEMENT SYSTEM

Part A (Marks: 10)

1. What is the primary goal of DBMS?
2. How FoxPro create a .fpt file?
3. What is data inconsistency?
4. What is difference between LIST and DISPLAY ALL?
5. How we express this query in relational algebra? Delete all loans with amount in the range 0 to 50 from loan table.
6. The following commands are entered by a user.

```
STORE DATE TO X
```

```
?LEN(DTOC(X))
```

What is displayed by FoxPro in response to last command?

7. What do you mean by candidate key?
8. Which type of variable created using ACCEPT command?
9. In SQL transactions are ended by which statement?
10. What we use to add a comment to an executable command?

Part B (Marks: 10)

1. What is UDF in FoxPro? Create a function square to calculate square of a given number.
2. To protect the database, what security measures are used at several levels?
3. What are SET commands? Write any four SET commands.
4. What is domain integrity?
5. Write the steps for automatic documentation.

Part C (Marks: 30)

1. Create a menu bar with three pads - My POP, DIR, CLOSE. Assign a hot key for each pad. Use suitable commands for these pads.

OR

Create a screen file as shown below. Write all steps.

Name	<input type="text"/>	<input checked="" type="checkbox"/> Male		
Region	<North>	<South>	<East>	<West>
<input checked="" type="checkbox"/> Graduate		<input type="checkbox"/> Arts		
<input type="checkbox"/> Post Graduate		<input type="checkbox"/> Science		

2. What is concurrency control? Explain with suitable example.

OR

- (a) What is serializability?
- (b) Explain different data types in FoxPro.

3. Explain following:

- (a) Generalization
- (b) Mapping Constraints

OR

- (a) What is organization? Explain each type.
- (b) Why we need recovery? Explain its types in short.

