Sample Questions for Paper II

DEPT. OF COMPUTER SCIENCE & TECHNOLOGY
Section I: Marking Scheme: **1 mark for each question**.

1. A relation R on a set S is called an equivalence relation if
   a. R is reflexive, anti symmetric and transitive
   b. R is not reflexive, anti symmetric and transitive
   c. R is reflexive, symmetric and transitive
   d. R is non transitive, anti symmetric and reflexive

2. Which of the following statements is false?
   a. Every tree is a bipartite graph.
   b. A tree contains a cycle.
   c. A tree with n nodes contains n-1 edges.
   d. A tree is a connected graph.

3. The octal number which is equal to the binary number 11100101001 is
   a. $(3450)_8$
   b. $(3452)_8$
   c. $(3451)_8$
   d. $(3459)_8$

4. In DBMS, deferred update means:
   a. All updates are done first but the entries are made in the log file later.
   b. All log files entries are made first but the actual updates are done later.
   c. Every update is done first followed by a writing on the log file.
   d. Changes in the views are deferred till a query asks for a view.

5. The output of lexical analyzer is
   a. Stream of tokens
   b. Parse tree
   c. Syntax tree
   d. 3-address code

6. A program has five virtual pages, numbered from 0 to 4. If the pages are referenced in the order of 01230140101234, with three page frames, the total number of page faults with FIFO will be equal to:
   a. 0
   b. 4
   c. 6
   d. 9

7. A computer uses the -------- IP address to refer to itself:
   a. 0.0.1.127
   b. 127.0.0.1
   c. 127.1.1.0
   d. 1.0.0.127

8. Which of the following is a part of Agile methodologies?
   a. SCRUM
   b. XP
   c. Crystal
   d. All of the above

9. Apache HADOOP is not a/an
   a. Implementation of MapReduce algorithm
   b. Distributed File System
   c. RDBMS Implementation
   d. Part of cloud computing

10. Which of the following is a pre-emptive scheduling algorithm?
    a. Shortest-job first
    b. Round-Robin
    c. Priority-based
    d. Last In First Out

Section II: Marking Scheme: **5 marks for each question**.

1. Construct a circuit for a full subtractor using AND gates, OR gates and inverters.

2. Explain the seven layers of OSI model.

3. Draw a AVL tree created by inserting the following data arriving in sequence: 92 24 6 7 11 8 22 4 5 16 19 20 78. State the main differences between AVL tree and B tree.

4. What is the limitation of predicate logic in representing knowledge base? Explain with an example.

5. Write a complete function in C language which takes as input two circular singly linked lists clist 1, clist 2 and appends contents of clist2 to clist1.