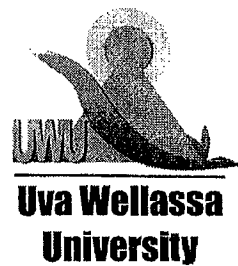




Uva Wellassa University, Sri Lanka
Faculty of Science and Technology
End Semester Examination –February/March 2012
CST111-2 Introduction to Computer Science & Technology



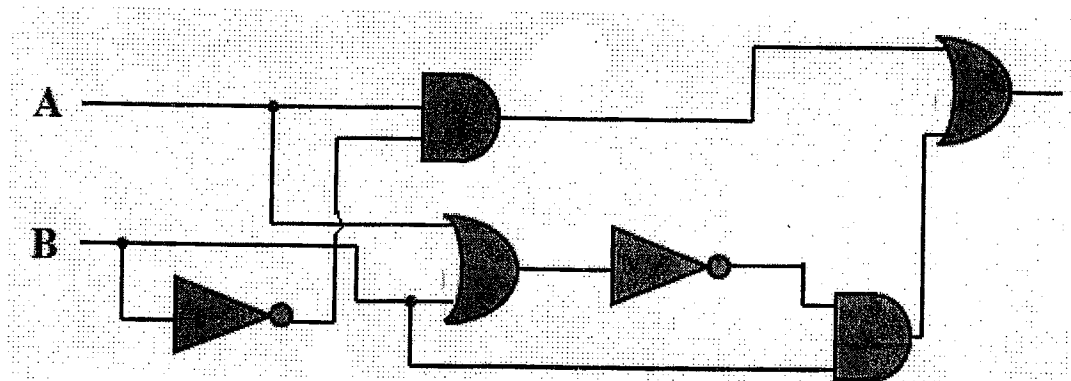
Instructions for candidates:

This paper contains four (4) questions in three 3 pages.
Answer all Questions.
Time allowed: Two (2) hours

1.
 - a. How can you classify computers based on their size? Explain them in brief. (20 marks)
 - b. Cache and RAM together form the main memory of a computer. Compare and contrast Cache and RAM memory.
 - c. What are the types of Secondary storage? Explain three (03) of them.
 - d. Briefly explain the following terms.
 - i. System software.
 - ii. High Level Languages.
 - iii. Input Devices.

2.
 - a. What is Computer Network? (20 marks)
 - b. What are the Advantages of Computer Networks?
 - c. By using a block diagram briefly describe the communication model.
 - d. List five common communication tasks.
 - e. What are the two categories of transmission media? Briefly explain them.
 - f. How can you classify networks based on the transmission technology? Briefly explain each network structure.

3. a. Write down the expressions for AND, OR and NOT gates and construct the truth tables for each.
- b. Draw logic circuits for the following Boolean expressions.
- $F = BC + B\bar{C} + BA$
 - $F = AB + A(B + C) + B(B + C)$
 - $F = \overline{AB} + A\overline{(B + C)} + B\overline{(B + C)}$
 - $F = \overline{AB}(\overline{A+B})(\overline{B+B})$
- c. Simplify the above (*Part b*) Boolean expressions.
- d. Write the Boolean expression for the following circuit and construct the **truth table** for the derived expression.



4.

a. Represent following values in binary form using signed magnitude system. (use 8 bit numbers)

(30 marks)

- i. -75
- ii. +25
- iii. +88
- iv. -34

b. Represent above (*Part a*) numbers in 8 bit 2's complement form.

c. Add following binary numbers

- i. $11001011_2 + 10100_2$
- ii. $10101111_2 + 1001011_2$
- iii. $1011_2 + 1011_2$
- iv. $1111101_2 + 11101_2$

d. Subtract following decimal numbers using 4 bit 1's complement method.

- i. 7-2
- ii. 3-5
- iii. 6-1

