THE OPEN UNIVERSITY OF SRI LANKA
DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE
B.SC. DEGREE PROGRAMME 2011/2012
NO BOOK TEST: 02
CSU2178: DIGITAL COMPUTER FUNDAMENTALS
DURATION: ONE HOUR ONLY (1 HOUR)

Date: **23rd April, 2012** Time: **4.00 p.m. to 5.00 p.m.**

Answer **ALL** Questions.

Q1.

a. Do the two's complement additions and subtraction on following base ten numbers;
   i. 23 + 32
   ii. 56 – 63
   iii. 301 + 75
   iv. 503 – 203
b. How can we implement a 16 bit adder by using a 4 bit ripple carry address?
c. Describe how to convert the full adder circuit to do 4 bit addition and subtraction.
d. Draw the full subtractor circuit for 4 bit subtraction operation.

Q2.

a. Describe the **Memory Map** using an example.
b. Briefly describe the following;
   i. Von Neumann Model
   ii. Levels of a computer
   iii. Fetch – Execute cycle
c. What are the functions of the following instructions?
   i. st
   ii. andccc
   iii. srl
   iv. call
   v. jmpl
d. Write an Assembly Language program to add two values in the main memory and display the result.