Midsem: Computer Programming Lab (MA512)

M.Sc. (M&C), Semester: Aug-Nov 2008-2009

Dept. of Mathematics, IIT Guwahati

Date: October 15, 2008 Time: 2:00PM - 5:00PM

Attempt all questions *Full Marks: 30*

1. Write a C program for generating 100 random integer coordinates inside a 20x20 square region, then you should display the coordinates which are laying extreme left, right, top and bottom of the region. [4+6]

2. Write a C program for student record, where each record should be represented by a C structure having member/fields for name, age, roll no and sex (M/F). You should write the program in a modular manner, with (*i*) one function to enter record in from the console, (*ii*) one function to display the record to the console, (*iii*) one function to calculate the average age for male students and female students separately and display their record which are belonging to below the average for each category. You can assume some reasonable upper limit on number of records (say, 10) if you want to use an array. [3+3+4]

3. Write a C program for *in place* reversing an array of integer. You should you use a function that access values of an array using pointers for reversal and pointer as an argument. *In place* reversing means without using any other array you have to overwrite it with its own reversal. Write the same program using dynamic memory allocation where define array as a pointer variable rather than an array. [5+5]