PROGRAM 5A

Program 5A Requirements: Write a program to numerically integrate a function using Simpson's rule and write the function for the normal distribution. The program should be designed to integrate using various supplied functions. This rule and several example calculations are given in Section A5. You will need this program to calculate the values of the various statistical distributions used in later program assignments and in the analysis of your PSP data.

Program 5A Testing: Thoroughly test the program. Include a test to calculate the probability values of the normal distribution integral from $-\infty$ to x = 2.5, from $-\infty$ to x = 0.2 and from $-\infty$ to x = -1.1. The results should be approximately 0.9938, 0.5793, and 0.1357, respectively. Include in your test report a table of results in the format in table D10.

Test Value – x	**Expected Results**	**Actual Results**
2.5	0.9938	0.9937903346670277
0.2	0.5793	0.5792597094391108
-1.1	0.1357	0.13566606093338462

Table D10 TEST RESULTS FORMAT – PROGRAM 5A