United International University (UIU)

Dept. of Computer Science & Engineering (CSE)

CSE 1110: Introduction to Computer Systems

Final Exam, Time: 45 Minutes Marks: 25

Name:
Id:

Note: Answer all the questions.

1.	Einstein's equation for the theory of relativity is as follows: $E = mc^2$ where ***E*** = energy, ***m*** = mass, ***c*** = Speed of light Write a C program that will take 2 floats (Energy and mass) as input, and print the Speed of Light as output to 3 decimal places. **Sample Input** | **Sample Output** 134.5 150.2 | 0.946 84.9 12.6 | 2.596	[5]
2.	Write a C program that can calculate the area and perimeter of a rectangle. The system first takes input of a character that can be 'A' or 'P'. If **A** is entered, the program will compute area, and if P is entered, the program will compute perimeter. To compute, the program needs to take two floating point numbers, length and width first. **Formulas:** ● *Area of a rectangle: length * width* ● *Perimeter of the rectangle: 2* (length + width)* **Sample Input** | **Sample Output** A 5.0 4.0 | The area of a rectangle is: 20.000000 P 3.0 2.0 | The perimeter of the rectangle is: 10.000000	[5]
3.	Take three **integers** as input and find the maximum value. If the maximum number is divisible by 2 print "Red Number", or if it is divisible by 3, print "Blue number", or if divisible by both 2 and 3 print, "Purple number" or if it is divisible by neither print "White number". **Sample Input** | **Sample Output** 34 45 40 | Blue Number	[5]

10 9 7	Red Number

4.	Write a C program that will take three integer numbers as input, and calculate *the maximum value* after using exactly *one addition* and exactly *one multiplication* operation among those numbers. [***Hints****:* Compute values for all three possible combinations (a+ b*c), (b+a*c), and (c+a*b) and find the maximum value.]	[5]

Sample Input	Sample Output
1 4 7	Maximum value: 29
-5 0 3	Maximum value: 3
-3 -2 -9	Maximum value: 25

5.	Write a program that will take **a positive integer** as input, find the last digit, and print all the digits from the last digit to digit 9. You must use **switch case statements** and the last digit as its input**.**	[5]

Sample Input	Sample Output
54	456789
90	0123456789
9	9
16	6789