UNIVERSITY OF COLOMBO SCHOOL OF COMPUTING

COMPUTER SCIENCE DEGREE PROGRAMME

FIRST YEAR

SCS 1202 - Programming Using C

Lab Sheet 02

1. If a = 1, b = 2, c = 3, d = 4 get the answers for the following equations using your C programming knowledge. (Note: The answers should be in 2 decimal points.)

    a. (a+b)/(c+d)
    b. a+b/(c+d)
    c. (a+b)/c+d
    d. a*b/c*d

    Provide your answers in the program as a comment.

2. If a = 1, write a C program to do the following evaluations;
    a. a
    b. a++
    c. ++a
    d. a—
    e. --a

    Explain why “a” obtains those different values and provide your answers in the program as a comment.

3. Write a C program for the following pseudo code using your logical operator knowledge and provide your answers in the program as a comment.

```
int m = 40;
int n = 20;
int o = 20;
int p = 30;
```

    If the result is **TRUE** print **1** or **FALSE** print **0**

    I. (m>n and m !=0)

II. (o>p or p!=20)
III. (not (m>n and m !=0))

4. If the following declarations and assignments are made,

I. char C = ‘B’;
II. int i = 3, j = 3, k = 3;
III. double x = 0.0, y = 2.3;

Evaluate the following expressions.

a. i && j && k
b. x || i && j - 3
c. i < j && x < y
d. i < j || x < y
e. ‘A’ <= C && C <= ‘Z’
f. C - 1 == ‘A’ || C + 1 == ‘Z’

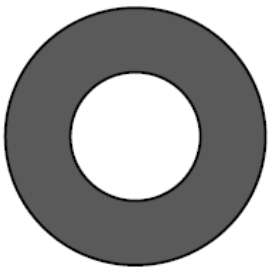
(Hint: Use *printf((x,y) ? "true" : "false")* format to print a boolean value)

5. Write a program that computes X^N.

$X^N = X * X * X * ... * X$
X= 1.3
N=5

6. Calculate the area of a disk which has a radius of 5.4 using the formula, $3.14*r^2$.

7. Calculate the surface area of the following disk with the outer radius 7 and the inner radius 5.



8. Calculate the volume of a cylinder which has a base radius of 3.2 and a height of 10.1.

9. Calculate the surface area of the same cylinder. (Without the bases).

10. Calculate the amount of minutes when given the number of years and days as user input.

11. Calculate the height of a person in centimeters when given the height in feet and inches.

    1 inch = 2.54 cm

    1 foot = 12 in

12. Fahrenheit to Celsius temperature conversion can be done using the formula,

    $^{0}F = {}^{0}C * 9/5 + 32$

    Write a C program to calculate the Fahrenheit temperature for a given temperature in Celsius.

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