

C PROGRAMMING - CODE OUTPUT PREDICTION WORKSHEET

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Instructions: For each code snippet provided in the Lecture 2 slides on Canvas, carefully analyze the program and determine the output produced when it is executed. Write your answer in the “Your Predicted Output” column. Then, compile and run the program to verify your answer and correct any mismatches. Each question counts 10 points.

Note: Questions 11 and 12 are a bonus questions and are optional.

Question #	Component	Example Name	Your Predicted Output
1	Component 1 - Basic Structure	Simple Hello World	Hello from C!
2	Component 1 - Basic Structure	Multiple Includes	welcome to C programming! Square root of 16: 4
3	Component 1 - Basic Structure	Main Function Variations	Conflicting types for 'main'
4	Component 1 - Basic Structure	Comments and Documentation	Learning C Programming

5	Component 1 - Basic Structure	Minimal Program	(Nothing happens)
6	Component 2 - Variables	Basic Variable Declaration	Age: 25 Price: 19.99 Grade: A Pi: 3.14159
7	Component 2 - Variables	Declaration and Initialization	Count: 10 Temperature: 98.6 Initial: J Score: 95 Average: 87.5 Letter: B
8	Component 2 - Variables	Multiple Variables	X=1, y=2, z=3 Numbers: 10.5, 20.7, 30.9 Characters: X, Y, Z

9	Component 2 - Variables	Integer Variations	Regular int: 100 Short int: 50 long int: 1000000 Unsigned int: 200 long long int: 1000000000 Unsigned short: 300 Unsigned long: 4000000
10	Component 2 - Variables	Character Basics	Letter: A Digit: 5 Symbol: @ ASCII 65: A ASCII 97: a ASCII value of 'A': 65 ASCII value of 'a': 97 ASCII value of '5': 53 ASCII value of '@': 64 Next letter after 'A': B
11	Component 2 - Variables	Floating Point Precision	Float f1: 3.1400001049 Float f2: 3.1415927410 Double d1: 3.140000000000 Double d2: 3.141592653589793 Scientific Notation examples: $1.5e^3 = 1500.0$ $2.5e^{-2} = 0.025$

$1.23e^{10} = 12300000000$

Precision Comparison:

Float stores 3.1415927 (about 7 decimal places)
Double stores 3.141592653589793 (about 15 decimal digits)

12	Component 2 - Variables	Variable Naming	<p>Good naming Examples:</p> <p>Student age: 20</p> <p>Exam Score: 95.5</p> <p>Student grade: A</p> <p>GPA: 3.75</p> <p>Number of Students: 30</p> <p>Average temperature: 72.5</p> <p>First initial: J</p> <p>Poor naming (but still works):</p> <p>a = 20</p> <p>b = 95.5</p> <p>g = A</p> <p>Naming rules:</p> <ol style="list-style-type: none"> 1.) Must start with letter or underscore 2.) Can contain letters, digits, and underscores
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- 3.) Cannot use spaces or special characters.
- 4.) Cannot use C keywords (int, float, return, etc.)
- 5.) Case-sensitive (age != Age)