#  C Program Elements Homework

1. Write a single C statement to accomplish each of the following tasks.

a) Define variables temp, num, and total to be of type int, avg to be of type float, and value to be of type double.

int temp, num, total;

float avg;

double value;

b) Initialize variable temp to 7665, variable num to 42, variable avg to 123.45, and variable value to 3.14159265.

temp = 7665;

num = 42;

avg = 123.45f;

value = 3.14159265;

c) Add variable num to variable temp and assign the result to variable total.

total = num + temp;

d) Multiply variable temp by num and assign the result to temp.

temp = temp \* num;

or

temp \*= num;

e) Increment variable temp by 5.

temp = temp + 5;

or

temp += 5;

f) Calculate the product of the three integers contained in int variables x, y and z, and assign the result to the int variable product.

product = x \* y \* z;

2. Which of the following are not legal C identifiers:

a) hello\_world legal

b) \_4\_out\_of\_7 legal

c) purpleRain legal

d) 12345 not legal

3. What is the value of each of the following expressions?

a) 6 + 2 \* 4 – 1 13

b) 8 \* 2 - 3 \* 2 + 8 \* 4 42

c) 3 \* 4 \* 2 - 5 + 20 / 2 / 2 24

d) 4 \* ( 2 \* ( 4 - 1 ) ) – 5 19

4. Which of the following are not legal data types in C?

1. short int legal

b) long float not legal

c) long long legal

d) unsigned long legal

5. If c is a variable of type char, which one of the following statements is illegal?

a) putchar(c); legal

1. printf(c); not legal

c) c = 'c'; legal

d) c = '5'; legal

e) c = 50; legal

f) c = 3 + c \* 2; legal

6. Suppose that i is a variable of type int, j is a variable of type long, and k is a variable of type unsigned int. What is the type of the expression:

(long) i + (int) j \* k long

7. Suppose that i is a variable of type int, f is a variable of type float, and d is a variable of type double. What is the type of the expression:

i \* f / d double

8. Suppose that value is a variable of type float, num is a variable of type long, and sum is a variable of type int. Explain what conversions take place during the execution of the following statement:

sum = value + num;

The result of value + num is a float. The float gets converted to an int when assigned to sum.

9. Write a single C statement that performs each of the following tasks:

a) Display each of the words below on a separate line:

All you need is love.

printf("All\nyou\nneed\nis\nlove.\n"

b) Output the value of double variable temp using printf().

printf("%lf", temp);

1. Read three integers from the keyboard and store the value entered into integer variables num1, num2, num3.

scanf\_s("%d%d%d", &num1, &num2, &num3);

d) Print the double 123.456789 with 3 digits of precision. What value is printed?

printf("%.3lf", 123.456789);

123.457 is displayed

e) Print the floating-point value 3.14159f with 4 digits to the right of the decimal point. What value is printed?

printf( "%.4f", 3.14159);

3.1416 is displayed.

f) Print "The sum equals: " followed by the integer value of variable sum.ß

printf( "The sum equals: %d", sum );

10. What output is produced for each of the following statements?

a) printf("%5d, %6d", 123, 1234); 123, 1234

b) printf("%10.2e", 12.345); 1.23e+001

c) printf("%.5f", 12.345); 12.34500