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36A Midterm Review

1. Which of the following is true of the CPU? Select ALL that apply.

a. It is the temporary memory of the computer which is organized into bytes with memory addresses.
b. It is the permanent memory of the computer which is organized into files.
c. It is responsible for executing programs, doing calculations and moving data around in memory.
d. It is also known as the brain of the computer
e. It is also known as the Central Precision Unit
f. It is also known as the processor

2. Which of the following is true of the main memory? Select ALL that apply.

a. It is the permanent memory of the computer.
b. It is the temporary memory of the computer.
c. It is also known as the RAM.
d. Data in this kind of memory is stored as files
e. Data in this kind of memory is stored according to its memory address

3. Define an algorithm. An algorithm is _____

___Step by step instructions to solve a problem_____

_____

4. Define a compiler. A compiler is _____

___A compiler is a program that transforms code written by a developer in a high-level programming language into a low level object code (binary code) in machine language._____

_____

5. Convert the following decimal value into binary (show your steps): 62

64 32 16 8 4 2 1
1 1 1 1 1 0

6. Convert the following binary value into decimal (show your steps): 1100101

64 32 16 8 4 2 1 = 101
1 1 0 0 1 0 1

7. Write one line of code to declare a String variable and assign it the value of *4* (name of your choice).

String dogsOfMine = “4”;

8. Write one line of code to declare a char variable and assign it the value of *4* (name of your choice).

char four = ‘4’;

9. Write one line of code to declare an int variable and assign it the value of *4* (name of your choice).

int num1 = 4;

10. What will be printed to the console when the following lines of code are executed:

```
//assume below lines of code are part of a valid main function
System.out.print(2 + 3 / 2 - 13 % 3);
```

a. 0
b. 0.5
c. 1
d. 1.5
e. 2
f. 2.5

11. Complete user interaction. Write *three-four* lines of code as follows:

- Declare a new Scanner variable
- Declare a double variable named *miles*.
- Prompt the user to enter the number of miles with a phrase like: *Enter how many miles you walked:*
- Read in the user input and store it in the *miles* variable.

```
Scanner readIn = new Scanner(System.in);
Double miles;
System.out.print("Enter how many miles you walked: ");
miles = readIn.next();
```

12. What will be printed to the console when the following lines of code are executed:

```
String expression = "Good times!";
System.out.println(expression.length() + " " + expression.charAt(1));
```

a. 9 G
b. 9 o
c. 10 G
d. 10 o
e. 11 G
f. 11 o

13. Which of the following are legal variable names in Java (will compile). Select all that apply:

a. String model_of_car = 'S';
b. boolean soldIn2014 = true;
c. String make_of_car = "Tesla";
d. boolean 4models = true;
e. double price;
   130555.95 = price;

14. What will be the output to the console when the following code is run and compiled:

```
int numCats = 10;

if (numCats > 10)
{
      System.out.println("Crazy cat person!");
}
else
{
      System.out.println("Want to adopt a kitten?");
}

System.out.println("Sincerely, Felix the Cat");
```

Write the output below:

Want to adopt a kitten?

Sincerely, Felix the Cat

15. Identify and correct the 2 mistakes in the code below:

```
int guess;
Scanner input = new Scanner(System.in);
System.out.print("Enter a guess: ");
guess = input.nextInt();

if (guess = 7) {
  System.out.println(“Correct!”);
} else (guess != 7) {
  System.out.println(“Incorrect!”);
}
```

Correction:

If (guess == 7)
{
  Syst…..
}
else
{
  Syst…..
}

16. What will the following display to the console?

```
String name1 = “Felix”;
String name2 = “Frank”;

if (name1.compareTo(name2) < 0) {
     System.out.println(“Purrr!”);

} else {
     System.out.println(“Hiss!”);
}
```

Write the output below:

Hiss