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Score: 90 / 90 (100%)

Computer Science 1, Final Exam 2017-2018

TRUE/FALSE

T 1. **int**, **char**, **float**, **double**, and **boolean** are all "simple" data types.

Points: 1 / 1

T 2. A data structure is a data type whose components are smaller data structures and/or simple data types.

Points: 1 / 1

F 3. An array is a data structure with one of more elements of the same or different data types.

Points: 1 / 1

T 4. A char variable can be used like an small int.

Points: 1 / 1

T 5. The primary difference between float and double is in the magnitude of the values they can hold.

Points: 1 / 1

T 6. The % is called the modulus operator.

Points: 1 / 1

T 7. The relational or logical expression will result in a bool value.

Points: 1 / 1

T 8. `x=10/y*(127/x);` is the same as `x = 10 / y * (127/x);`

Points: 1 / 1

MULTIPLE CHOICE

B 9. Computer users today expect to use a _____ user interface.

a. touch-screen
b. graphical
c. command-line
d. on-line

Points: 1 / 1

A 10. GUI programs read _____ from the user and behave accordingly.

a. events
b. orders
c. command-line
d. files

Points: 1 / 1

D 11. What is HTML?

a. Happy Turtles Moving Lazily
b. Hyper thermal Marking Language
c. Hyper Terminal Language
d. Hypertext Markup Language

Points: 1 / 1

C 12. The Swing class used to produce Java applications is _____.

a. JApplet
b. JApplication
c. JFrame
d. JJavaApplication

Points: 1 / 1

B 13. The “container class” that is often used to hold other components.

a. JApplet
b. JPanel
c. JButton
d. paint

Points: 1 / 1

A 14. The screen of a computer is a grid of little squares called _____.

a. pixels
b. graphics
c. squares
d. dots

Points: 1 / 1

A 15. Java colors are typically created by combining what 3 values.

a. red, green, and blue
b. yellow, blue, and green
c. blue, red, and purple
d. cyan, magenta, yellow

Points: 1 / 1

D 16. A _____ object exists to display a line of text that cannot be edited by the user.

a. JButton
b. JTextarea
c. JTextfield
d. JLabel

Points: 1 / 1

C 17. What is the output of the code segment at right?

```
String[] list = new String[3];
list[1] = "A";
list[2] = "B";
for (int i = 0; i < list.length; i++)
      out.print(list[i] + " ");
```

a. 0 A B
b. A B
c. null A B
d. ArrayOutOfBoundsException

Points: 1 / 1

A 18. Which of the following statements, if added to the code segment below, would output the length of *a*?

```
char a[] = {'a','b','c','d','e'};
String s = "";
for (int i = 0; i < 5; i++)
      s += a[i];
System.out.println(s.substring(0,3));
```

a. out.print(a.length);
b. out.print(a.length());
c. out.print(a.size());
d. more than one of the above

Points: 1 / 1

B 19. Which of the following will print the number of elements in an array *a*?

a. System.out.print(a.size());
b. System.out.print(a.length);
c. System.out.print(a.length());

Points: 1 / 1

B 20. What is the output of the code segment at right?

```
try{
      int[] array1 = {1, 2, 3};
      int[] array2 = {4, 3, 2, 1};
      for(int i=0; i<array2.length; i++){
            System.out.print(array2[i]);
            array1[i] = array2[i];
      }
}catch(Exception e){
      System.out.println("FAIL");
}
```

a. FAIL
b. 4321FAIL
c. 432FAIL
d. 4321
e. 432

Points: 1 / 1

C 21. Data structures are defined by
a. the data types they store only.
b. the manner of data accesses only.
c. both the data storage and the data access.
d. the storage of primitive data types.

Points: 1 / 1

A 22. Consider the program segment below.

double grades[ ];
grades = new double[50];

What is the index range capable of accessing an element of the **grades** array?

a. 0..49
b. 1..49
c. 0..50
d. 1..50

Points: 1 / 1

E 23. What is the output of program **Java1215.java** below?

```
public class Java1215
{
  public static void main(String args[ ])
  {
    int list[ ] = {1,2,3,4,5};
    for (int k = 1; k <= 5; k++)
      System.out.println("list[" + k + "] = " + list[k]);
  }
}
```

a.
```
list[0] = 0
list[1] = 1
list[2] = 2
list[3] = 3
list[4] = 4
```

b.
```
list[0] = 1
list[1] = 2
list[2] = 3
list[3] = 4
list[4] = 5
```

c.
```
list[1] = 1
list[2] = 2
list[3] = 3
list[4] = 4
list[5] = 5
```

d.
```
list[1] = 2
list[2] = 3
list[3] = 4
list[4] = 5
```

e. Compile Error

Points: 1 / 1

E 24. What is the FIRST and LAST output from this program segment?

```
int IntNum[] = new int[100];
int J;
for (J=1; J<=100; J++)
   IntNum[J] = J;
 for (J=1; J<=100; J++)
   System.out.println(IntNum[J]);
```

a. 0 and 100
b. 0 and 99
c. 1 and 100
d. 1 and 99
e. Array Index Out Of Bounds Error

Points: 1 / 1

E 25. **Use this program segment to answer the question.**

```
boolean George[] = new boolean[15];
int J;

System.out.println(George.length);

for (J=0; J<15; J++)
           if (J == 0)
                George [J] = (J==0);
           else
                George [J] = !George[J-1];

System.out.println(George[7]);

System.out.println(George[8]);

System.out.println(George[15]);
```

What is the output of the fourth **println**?

a. true
b. false
c. 14
d. 15
e. Array Index Out Of Bounds Error

Points: 1 / 1

B 26. Which of the following statement correctly displays all the **list** elements?

```
int list[ ] = {11,22,33,44,55,66,77,88,99};
```

a.
```
for (int k=0; list item; k++)
      System.out.print(item + "  ");
```
b.
```
for (int item: list)
      System.out.print(item + "  ");
```
c.
```
for (int k=0; int item; k++)
      System.out.print(item + "  ");
```
d.
```
for (int k=0; list < item; k++)
      System.out.print(item[k] + "  ");
```

Points: 1 / 1

A 27. Rewrite the old **for** loop program segment below with the new **for** loop.

```
int list[ ] = {1,2,3,4,5,6};
for (int k = 0; k < list.length; k++)
      System.out.println(list[k]);
```

a.
```
for (int number: list)
      System.out.print(number + "  ");
```
b.
```
for (int number: list.length)
      System.out.print(number + "  ");
```
c.
```
for (int k = 0; number: list)
      System.out.print(number[k]);
```
d. This program segment cannot be converted to the new for loop.

Points: 1 / 1

C 28. The **Arrays** class

a. makes it possible to display individual array elements using the new Java 5.0 loop.
b. makes it possible to display individual array elements with any type of loop control structure.
c. makes it possible to display individual array elements without using any type of control structure.
d. does not make it possible to display individual array elements.

Points: 1 / 1

B 29. What is the output of the program below?

```
import java.util.Arrays;

public class Demo
{
        public static void main(String args[])
        {
                int list[] = {11,22,33,44,55};
                System.out.println(Arrays.toString(list));
        }
}
```

a. {11,22,33,44,55}
b. [11, 22, 33, 44, 55]
c. 11, 22, 33, 44, 55
d. There is no output without a loop structure.

Points: 1 / 1

C 30. Which import statement eliminates the need to use the **System** class identifier in a program statement?

a. import java.lang;
b. import java.lang.System.*;
c. import static java.lang.System.*;
d. import System.out.*;

Points: 1 / 1

A 31. An array is a

a. data structure with one, or more, elements of the same type.
b. data structure with LIFO access.
c. data structure, which allows transfer between internal and external storage.
d. data structure with one, or more, elements, called fields, of the same or different data types.

Points: 1 / 1

D 32. What is known by the declaration **ArrayList list = new ArrayList(); ?**

a. **list** is an **ArrayList** object.
b. Elements of the **list** array are objects.
c. The type of objects stored by **list** are unknown.
d. All of the above

Points: 1 / 1

B 33. A _____ is a linear collection that allows access to any element. Duplicates may exist.

a. collection
b. list
c. set
d. museum

Points: 1 / 1

B 34. Which of the following are the three general types of control structures?

a. conditional sequence, branching, selection
b. simple sequence, selection, repetition
c. selection, Repetition, repetition
d. simple sequence, branching, decision making

Points: 1 / 1

E 35. Which of the following are types of selection control structures?

I. One-Way selection
II. Two-Way selection
III. Multiple-Way selection

a. I only
b. II only
c. I and II only
d. II and III only
e. I, II and III

Points: 1 / 1

B 36. A repetition control structure

a. always repeats without any condition.
b. requires a conditional statement.
c. can only be used in combination with a selection control structure.
d. is required for repeating program segments 500, or more, times.

Points: 1 / 1

B 37. Which of the following sentences can be translated into a conditional statement?

a. Tomorrow is the start of the second semester.
b. If you are a national merit finalist, you will receive a scholarship.
c. Your SAT score is 1250.
d. Go straight to jail; do not pass go; do not collect any money.

Points: 1 / 1

B 38. What is the output of the following program segment?

```
double bonus = 500.0;
double sales = 200000.0;
if (sales >= 300000.0)
        bonus += 250.0;
System.out.println("Bonus: " + bonus);
System.out.println("The End");
```

a. `Bonus: 50.0`
   `The End`
b. `Bonus: 500.0`
   `The End`
c. `Bonus: 750.0`
   `The End`
d. No output

Points: 1 / 1

B 39. What is the output of the following program segment?

```
int k;
k = 2500;
if (k < 3000)
        System.out.println("k = " + k);
System.out.println("k = " + k);
```

a. 2500
   2500
b. k = 2500
   k = 2500
c. k = 2500
d. No output

Points: 1 / 1

C 40. What is the output of the following program segment?

```
int k;
k = 4000;
if (k < 3000)
        System.out.println("k = " + k);
        System.out.println("k = " + k);
```

a. 4000
   4000

b. k = 4000
   k = 4000

c. k = 4000

d. No output

Points: 1 / 1

D 41. What is the output of the following program if **4000** is entered at the keyboard?

```
Scanner input = new Scanner(System.in);
int k = input.nextInt();

if (k < 3000)
{
        System.out.println("k = " + k);
        System.out.println("k = " + k);
}
```

a. 4000
   4000

b. k = 4000
   k = 4000

c. k = 4000

d. No output

Points: 1 / 1

D 42. What is the value of **num** at the conclusion of the following program segment?

```
char qwerty = 'B';
int num = 100;
switch(qwerty)
{
        case 'A':  num ++;
        case 'B':  num += 2;
        case 'C':  num += 3;
        case 'D':  num += 4;
}
```

a. 100

b. 102

c. 105

d. 109

e. Error message

Points: 1 / 1

E 43. Compare the following two program segments. Assume that variables are correctly defined. What is true about the output of these program segments?

Segment 1	Segment 2

Scanner input = new Scanner(System.in);
int k = input.nextInt();
if (k == 1)
  System.out.println(”k equals 1”);
if (k == 2)
  System.out.println(”k equals 2”);
System.out.println(”Wrong Input”);
	Scanner input = new Scanner(System.in);
	int k = input.nextInt();
	switch (k)
	{
	  case 1 : System.out.println(”k equals 1”);
	  case 2 : System.out.println(”k equals 2”);
	  default : System.out.println(”Wrong Input”);
	}

a. Segment 1 displays the same output as Segment 2 for all values of k.
b. Segment 1 never displays the same output as Segment 2.
c. Segment 1 displays the same output as Segment 2 if k = 1 or k =2.
d. Segment 1 displays output. Segment 2 has a syntax error.
e. Segment 1 and Segment 2 will both display **Wrong Input** regardless of the value of k.

Points: 1 / 1

C 44. The **for** loop structure is best used for what kind of Repetition?

a. pre-condition
b. post-condition
c. fixed

Points: 1 / 1

C 45. What is the output of the following program segment?

```
int x,y;
y = 0;
for (x = 1; x <= 5; x++)
{
        y++;
        y++;
}
System.out.println("y = " + y);
```

a. y = 5
b. y = 6
c. y = 10
d. y = 11
e. y = 12

Points: 1 / 1

B 46. What is the output of the following program segment?

```
for (int k = 5; k > 0; k--)
        System.out.println("What is OOP?");
```

a. What is OOP?
What is OOP?
What is OOP?
What is OOP?
What is OOP?
What is OOP?

b. What is OOP?
What is OOP?
What is OOP?
What is OOP?
What is OOP?

c. What is OOP?
What is OOP?
What is OOP?
What is OOP?

d. What is OOP?

e. No output

Points: 1 / 1

A 47. What is the output of the following program segment?

```
int j;
j=25;
while (j>2)
{
        System.out.print(j + "  ");
        j/=2;
}
```

a. 25 12 6 3
b. 25 13 7 4 2
c. 25 12 6 3 1
d. 12 6 3 1
e. 12 6 3

Points: 1 / 1

D 48. What is the output of the following program segment?

```
int j;
j=25;
while (j>2)
{
        j/=2;
        System.out.print(j + "  ");
}
```

a. 25 12 6 3
b. 25 13 7 4 2
c. 25 12 6 3 1
d. 12 6 3 1
e. 12 6 3

Points: 1 / 1

B 49. What is the FIRST number output from the following program segment?

```
int j;
j=5;
while (j>-2)
{
        j-=3;
        System.out.println(j);
}
```

a. 5
b. 2
c. -1
d. -2
e. -3

Points: 1 / 1

E 50. What is the output of the following program segment?

```
int j;
j=1;
while (j<=10)
        j++;
        System.out.print(j);
```

a. 12345678910

b. 1 2 3 4 5 6 7 8 9 10

c. 1
2
3
4
5
6
7
8
9
10

d. 10

e. 11

Points: 1 / 1

A 51. Large programs are so _____ that it would be almost impossible to write them without some way to break them up into manageable "_____."

a. complex, chunks
b. simple, bytes
c. beautiful, pieces
d. simple, chunks

Points: 1 / 1

A 52. Organizing your program into subroutines helps you _____ your thinking and your program design effort.

a. organize
b. confuse
c. waste
d. destroy

Points: 1 / 1

D 53. The discipline called _____ is concerned with the construction of correct, working, well-written programs.

a. coding
b. hacking
c. mechanical engineering
d. software engineering

Points: 1 / 1

C 54. During the 1970s and into the 80s, the primary software engineering methodology was _____.

a. ancient programming
b. accidental programming
c. structured programming
d. impossible programming

Points: 1 / 1

D 55. Top-down programming deals almost entirely with producing the _____ necessary to solve a problem.

a. program
b. flow charts
c. Venn diagrams
d. instructions

Points: 1 / 1

C 56. On a timesharing system, users sit at "_____" where they type commands to the computer.

a. desks
b. computers
c. terminals
d. cubicles

Points: 1 / 1

B 57. One set of Java GUI components is the AWT or _____, which was available in the original version of Java.

a. Awesome Wonderful Twitter
b. Abstract Windowing Toolkit
c. Aardvarks, Wombats, and Turkeys
d. Advanced Windows Tools

Points: 1 / 1

C 58. Another set of GUI components included since Java version 1.2, is known as _____.

a. dance
b. stuff
c. swing
d. Super Windowing Toolkit

Points: 1 / 1

B 59. Java includes many predefined classes that represent various types of GUI _____.

a. devices
c. windows
b. components
d. programs

Points: 1 / 1

D 60. One of the most basic protocols on the Internet is the _____ (IP), which specifies how data is to be physically transmitted from one computer to another.

a. International Pancake
c. Network Protocol
b. Routing Table
d. Internet Protocol

Points: 1 / 1

A 61. The two most important basic Internet protocols are referred to collectively as _____and provide a foundation for communication.

a. TCP/IP
c. DoD
b. TCBY
d. TTBIP

Points: 1 / 1

B 62. All communication over the Internet is sent in the form of _____.

a. boxes
c. envelopes
b. packets
d. cell phones

Points: 1 / 1

B 63. Every computer on the Internet has an _____, a number that identifies it uniquely among all the computers on the net.

a. SSN
c. phone number
b. IP address
d. ID code

Points: 1 / 1

B 64. _____, are used to fetch messages from an email account so that the recipient can read them.

a. Fetch and Execute
c. Line and Lure
b. POP and IMAP
d. Postmen

Points: 1 / 1

C 65. The statement x = x * 27; could also be written as:

a. x * 27 = x;
b. x += 27;
c. x *= 27;
d. x * x = 27;

Points: 1 / 1

A 66. In programming, what is a cast?

a. A cast is an explicit type conversion.
b. An an old social system in India
c. A group of people working together to create a dramatic work.
d. A set of characters enclosed by double quotes.

Points: 1 / 1

D 67. By default, what is the type of the literal 3.14?

a. char
b. int
c. float
d. double

Points: 1 / 1

C 68. The boolean (bool) type gets its name from a mathemetician named,

a. Rick Perry.
b. Stewart White.
c. George Boole.
d. Booley Boolenov.

Points: 1 / 1

C 69. The general form for initializing a variable is:

a. x = x + 1;
b. var < 5;
c. type var = value;
d. cout << “initializing a variable”;

Points: 1 / 1

A 70. Which real number data type is the most accurate?

a. **double**
b. **float**
c. **real**
d. **long**
e. **scientific**

Points: 1 / 1

D 71. Unary operators can be written in _____ style.

I. prefix
II. postfix
III. infix

a. I only
b. II only
c. III only
d. I and II only
e. I, II and III

Points: 1 / 1

B 72. Assume the variables **a**, **b**, and **q** are defined as **int**.
Which Java statement below represents the mathematical expression **q = 6(a - b)?**

a. **q = 6 * a - b;**
b. **q = 6 * (a - b);**
c. **q = 6a - 6b;**
d. None of the above

Points: 1 / 1

A 73. What is the output of the program segment below?

```
int number = 5 + 8 * 3 + 2;
System.out.println(number);
```

a. 31
b. 41
c. 45
d. 65
e. Error message

Points: 1 / 1

B 74. What is the output of the program segment below?

```
int number = (5 + 8) * 3 + 2;
System.out.println(number);
```

a. 31
b. 41
c. 45
d. 65
e. Error message

Points: 1 / 1

D 75. What are the three data types that we are able to input from the keyboard?

a. int, data, server
b. String, document, file
c. picture, text, file
d. String, int, double
e. None of these

Points: 1 / 1

C 76. In the following code, assume that the portion designated with **<#1>** is a *true* statement. What will be the output?

```
if( <#1> )
{
        System.out.print("Elvis");
}
System.out.println(" Presley");
```

a. Elvis
b. ElvisPresley
c. Elvis Presley
d. Presley (has a leading space)
e. None of these

Points: 1 / 1

B 77. How many elements are stored in *double d[]*? Store the answer in an appropriate variable type.

a. int i = d.length( );
b. int i = d.length;
c. int i = (double)d.length;
d. More than one of these
e. None of these

Points: 1 / 1

MATCHING

Is this one of the eight basic (primitive) Java data types?
a. yes, it is a basic data type
b. no, it is not a basic data type

A 78. double

Points: 1 / 1

A 79. boolean

Points: 1 / 1

A 80. short

Points: 1 / 1

B 81. check

Points: 1 / 1

A 82. byte

Points: 1 / 1

What kind of operator is this?
a. Boolean Operator
b. Relational Operator
c. Arithmetic Operator
d. Assignment Operator
e. Conditional Operator

C 83. *

Points: 1 / 1

A 84. &&

Points: 1 / 1

A 85. ||

Points: 1 / 1

B 86. = =

Points: 1 / 1

B 87. !=

Points: 1 / 1

Match the escape sequence code with the correct meaning.
a. \b
b. \f
c. \n
d. \r
e. \t
f. \”

A 88. Backspace

Points: 1 / 1

B 89. Form feed

Points: 1 / 1

E 90. Horizontal tab

Points: 1 / 1