PROG 10082, Object Oriented Prog 1
Midterm #1 - Review

Summary of Topics : *The exam will cover everything you've learned to date.*

Q1) Choose the alternative(s) that best completes the statement or answers the question.

1. You use _____ to run a Java program.
   A. javac
   B. java

2. A Java program block starts with an open brace ({) and ends with a closing brace (}).
   A. true
   B. false

3. 5 % 5 is _____
   A. 4
   B. 3
   C. 0
   D. 2
   E. 1

4. A variable may be assigned a value only once in the program.
   A. false
   B. true

5. You can cast a double value to _____.
   A. byte
   B. short
   C. long
   D. int
   E. All of the above

6. pow is a method in the _____ class.
   A. Integer
   B. System
   C. Double
   D. Math

7. Which of the following operators has the highest precedence?
   A. casting
   B. *
   C. /
   D. +

8. Which of the following are not valid assignment statements?
   A. 55 = x;

B. x += 3;
C. x = 56 + y;
D. x = 55;

9. If you attempt to add an int, a byte, a long, and a float, the result will be a _____ value.
A. double
B. long
C. float
D. int

10. The result of an integer division is the integer part of the division; the fraction part is truncated.
A. true
B. false

11. Which of the following is not a valid boolean expression.
A. 1 = X
B. (x =< 5) && (x>=5)
C. (1 < x < 100)
D. (x = 1) || (x != 1)
E. All of the above

12. Which of the Boolean expressions below has incorrect syntax?
A. !(x > 0) && (x > 0)
B. (x != 0) || (x = 0)
C. (x > 0) || (x < 0)
D. (true) && (3 > 4)

13. Which of the following expressions evaluates to true?
A. 'a' > 'A'
B. 34 > 34
C. 'A' > 'z'
D. 2 > '2'

14. Suppose cond1, cond2, and cond3 are Boolean expressions. Which of the following expression is equivalent to cond1 || cond2 && cond3?
A. (cond1 || cond2) && cond3
B. cond1 || (cond2 && cond3)

15. Which of the following is the correct expression that evaluates to true if the number x is between 1 and 100 or the number is negative?
A. ((x < 100) && (x > 1)) || (x < 0)
B. 1 < x < 100 && x < 0
C. (1 > x > 100) || (x < 0)
D. ((x < 100) && (x > 1)) && (x < 0)

16. Analyze the following two code fragments.

(i)

```
int x = 5;
if (0 < x) && (x < 100)
  System.out.println("x is between 1 and 100");
```

(ii)

```
int x = 5;
if (0 < x && x < 100)
  System.out.println("x is between 1 and 100");
```

A. The first fragment has a syntax error.
B. The second fragment has a syntax error.
C. Both fragments compile but produce different results.
D. Both fragments produce the same output.

17. What is (int)Math.random()?

A. 0
B. 0.5
C. 1.1
D. 1

18. What is the output of the following code:

```
int x = 9;
int y = 8;
int z = 7;

if (x > 9)
    if (y > 8)
      System.out.println("x > 9 and y > 8");
else if (z >= 7)
    System.out.println("x <= 9 and z >= 7");
else
    System.out.println("x <= 9 and z < 7");
```

A. x <= 9 and z < 7;
B. x > 9 and y > 8;
C. none
D. x <= 9 and z >= 7;

19. Suppose cond1 and cond2 are two Boolean expressions. When will this if condition be true? if (cond1 && cond2) ...

A. in case cond1 is false and cond2 is true

B. in case cond1 is true and cond2 is true
C. in case cond1 is true and cond2 is false
D. in case cond1 is false and cond2 is false

20. Which of the following expression is equivalent to (x> 1).
A. !(x <= 1)
B. x >= 1
C. !(x < 1)
D. !(x = 1)

21. Analyze the following code:

```
// Enter an integer
Scanner input = new Scanner(System.in);
int number = input.nextInt();

if (number <= 0)
System.out.println(number);
System.out.println(number);
```

A. number is printed out twice if number is zero;
B. number is always printed out at least once;
C. number is printed out twice if number is negative;
D. number is printed out once if number is positive.
E. All of the above

22. parseInt is a method in the _____ class.
A. Math
B. Integer
C. Double
D. System

23. Assume that the ASCII code for character c is 99. What is the printout of the following code? System.out.println("a" + 'c');
A. 9799
B. 196
C. a99
D. ac

24. Which of the following is a possible output for (int)(61 * Math.random())?
A. 90
B. 600
C. 100
D. 60

25. You can assign the value in _____ to an int variable.
A. 93
B. 'x'
C. 98.3
D. true

26. Which of the following is the correct expression of character a?
A. '\a' B. '\000a' C. "a" D. 'a'

27. To concatenate s1, s2, s3, and s4, you write _____.
A. s1.concate(s2).(concate(s3).concate(s4));
B. s1.concate(s2).concate(s3).concate(s4);
C. ((s1.concate(s2)).concate(s3)).concate(s4);
D. s1.concate(s2) + s3.concate(s4);

28. Math.pow(3, 3) returns _____.
A. 9.0
B. 9
C. 27
D. 27.0

29. What is "Welcome" + 1 + 1*2?
A. Welcome12
B. Welcome3
C. Welcome4
D. Welcome11*2

30. Which of the following statements are correct to concatenate string s1 into s2.
A. s1 + = s2;
B. s1.concate(s2);
C. s2 += s1;
D. s2.concate(s1);

31. Math.ceil(5.5) evaluates to _____.
A. 6.0
B. 6
C. 5.0
D. 5

32. You can cast a character value to an int, or an int to char.
A. false
B. true

33. Is 'a' larger than 'A'?
A. No
B. Yes

34. Math.sqrt(4) returns _____.
A. 2
B. 1.0
C. 2.0
D. 1

35. Which of the following statements are incorrect?
A. String s = 'r';

B. int k = null;
C. float f = 4.5;
D. char c = "r";

36. Assume that the ASCII code for character c is 99 and for a is 97. What is the printout of the following code?

```
System.out.println('a' + 'c');
```

A. a99
B. 196
C. 9799
D. ac

37. Which of the following assignment statements is correct to assign character 5 to c?
A. char c = "344";
B. char c = '5';
C. char c = 5;
D. char c = "5";

38. Assume that the ASCII code for character c is 99 and for a is 97. What is the printout of the following code?

```
System.out.println("AB" + 'a' + 'c');
```

A. AB9799
B. AB196
C. ABa99
D. ABac

39. The expression 'c' - 'e' is _____.
A. invalid
B. a random number
C. 2
D. -2

40. parseDouble is a method in the _____ class.
A. Integer
B. System
C. Math
D. Double

41. Math.floor(5.5) evaluates to _____.
A. 5
B. 5.0
C. 6
D. 6.0

42. Which of the following expression yields an integer between 0 and 100, inclusive?
A. (int)(Math.random() * 100) + 1
B. (int)(Math.random() * 100 + 1)
C. (int)(Math.random() * 101)

D. (int)(Math.random() * 100)

43. Assume x is 0. What is the output of the following statement?

```
if (x > 0)
  printf("x is greater than 0");
else if (x < 0)
  printf("x is less than 0");
else
  printf("x equals 0");
```

A. None
B. x is less than 0
C. x is greater than 0
D. x equals 0

Q2) Short Answer Questions

i. (a) Write a statement that shows a confirm dialog with the following configuration:

- message:"Are you sure you want to exit?"
- title: "Exit Program"
- dialog box shows the Yes and No buttons, and the warning Icon

Answer:

(b) Write the condition in the if-statement to terminate the program if the user clicks "Yes" in the dialog box in (a).

Answer:

ii.

a) In Java syntax, what are the 6 relational operators we use for conditions/comparisons?
Answer:

b) In Java syntax, what are the 3 logical operators (in order of precedence) we use for more complex conditions?
Answer:

iii. What is the output of the following segments of code:

a)

```
String s1 = "Hello";
String s2 = "hello";
System.out.println(s1.equals(s2));
```

Answer:

b)

```
String s1 = "Hello";
String s2 = "hello";
System.out.println(s1.equalsIgnoreCase(s2));
```

Answer:

iv. Write conditions for each of the following:

a) To determine if the value of the variable **number** is even.
Answer:

b) To ask if the contents of the string variable **userName** are equal to a constant variable called GUEST_LOGIN.
Answer:

c) To determine if the customer's age is 65 or over.
Answer:

v. What is the output of the following code:

```
public class WhatIsThis {
   public static void main(String[] args) {
      int counter = 5, num = 10;
      if (num > 100)
```

```
System.out.println("num is too small");
if (counter < num)
System.out.println(counter);
else
System.out.println(num);
}
}
```

Answer:

2. How would you fix the code above with proper indentation/braces so that you get the same output?

Answer:

```
public class WhatIsThis {
   public static void main(String[] args) {
      int counter = 5, num = 10;
      if (num > 100)
         System.out.println("num is too small");
      if (counter < num)
         System.out.println(counter);
      else
         System.out.println(num);
   }
}
```

3. What is the output of the following code:

```
public class WhatIsThis {
   public static void main(String[] args) {
      int num1 = 10, num2 = 50;
      if (num1 <= 0) {
            System.out.println("invalid num1");
      } else if (num < 100) {
         System.out.println("num1 is less than 100");
         if (num1 > num2) {
            System.out.println("num1 is larger");
         } else {
            System.out.println("num1 is smaller");
         }
      } else {
         System.out.println("num1 is 100 or more");
      }
   }
}
```

Answer:

num1 is less than 100
num1 is smaller

Q3) Using the code below...

i.

a) Identify any syntax or logic errors in the code and suggest corrections.

b) Identify any stylistic errors or pieces of code that don't follow proper standards/conventions.

```
public class junk
{
public static main(String[] args) {
Scanner keys = new Scanner();
System.out.println(Enter a number:);
int somenumber = keys.next();
HalvedNumber = somenumber / 2
System.out.println("Your number doubled: " (somenumber * 2));
System.out.print("Your number halved: + halvedNumber);
}
```

ii. What is the output of the following program?

```
public class Question2 {
   public static void main(String[] args) {
      int x = 2, y = 5, z = 20;
      System.out.print("even?");
      System.out.print(z%x);
      x += z / x + y++;
      System.out.println(" x is " + x);
      System.out.println(" y is " + y);
      System.out.println(" z is " + z);
      int blah = x + y * z - y;
      System.out.println("blah? " + blah + 1);
   }
}
```

Q4) Complete the tasks indicated in the comments:

```
public class SalesJunk
{
    public static void main(String[] args)
    {
      // get a sales amount from the user using a Scanner object
      // get a commission rate from the user (e.g. 5 for 5%)
      // calculate and display (on the console) the amount of commission the
      //  sales person should be paid (sales * comm) - format to 2 decimal places
    }
}
```

Q5)

(i) Write a Java Program to Check if a Given Integer is Odd or Even

(ii) Write a simple application to calculate the cost of making custom vertical blinds for a window. Your program should prompt the user to enter the length and width of the window in metres, and the cost per square metre of the fabric for the blinds. Your program should calculate and display the totals and taxes on the console in the

following format:
Cost of your vertical blinds:
Sub Total: $ 100.00
HST: $ 13.00
Final Total: $ 113.00

In this example, the user inputs were 5 for the length, 10 for the width, and 2 for the cost of fabric.