UGANDAMARTYRS UNIVERSITY

NKOZI

UNIVERSITY EXAMINATIONS

FACULTY OF SCIENCE

DEPARTMENT OF COMPUTER SCIENCE & INFORMATION SYSTEMS

BSc Information Technology and General

Year 2

Object Oriented Programming with Java II

DATE:2nd May 2016

TIME: 2: 00- 5:00 PM

DURATION: 3HRS

Instructions:

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1. *Carefully read through ALL the questions before attempting*
2. ***ANSWER ALL Questions in sections A and B***
3. *All questions in section A are 2 marks.*
4. *Ensure that your **Reg number** is indicated on Exam paper*
5. *Ensure your work is **clear** and **readable**. Untidy work shall be penalized*
6. *Any type of examination Malpractice will lead to automatic disqualification*

Registration No:_____

SECTION A:

Given:

```
1. public class Choosy {
2. public static void main(String[] args) {
3. String result = "";
4. int x = 7, y = 8;
5. if(x == 3) { result += "1"; }
6. else if (x > 9) { result += "2"; }
7. else if (y < 9) { result += "3"; }
8. else if (x == 7) { result += "4"; }
9. else { result += "5"; }
10. System.out.println(result);
11. }
12. }
```

1) What is the result? (Choose all that apply.)

A) 3 B) 34 C) 35 D) 345

E) Compilation fails due to an error on line 5.

F) Compilation fails due to errors on lines 8 and 9.

G) Compilation fails due to errors on lines 7, 8, and 9.

2) Give the abbreviation of AWT?

A) Applet Windowing Toolkit B) Abstract Windowing Toolkit

C) Absolute Windowing Toolkit D) None of the above

3) Which of the following statements is true?

A) The subclass of a non-abstract class can be declared abstract
B) All the members of the superclass are inherited by the subclass
C) A final class can be abstract
D) A class in which all the members are declared private, cannot be declared public
E) In Java the extends clause is used to specify interface.

4) Which is the container that doesn't contain title bar and MenuBars but it can have other components like button, textfield etc?

A) Panel B) Frame

C) Window D) Container

5) Which method can set or change the text in a Label?

A) setText() B) getText()

C) All the above D) None of the above

6) Which package provides many event classes and Listener interfaces for event handling?

A) java.awt B) java.awt.Graphics

C) java.awt.event D) None of the above

7) What will be the output of the program?

```
try
{
int x = 0;
int y = 5 / x;
}
catch (ArithmeticException ae)
{
System.out.println(" Arithmetic Exception");
}
System.out.println("finished");
```

A) finished B) Nothing will happen

C) Compilation error D) Arithmetic Exception

8) What will be the output of the program?

```
classMain {

  publicstaticvoidmain(String args[]) {

    intx = 0;

    inty = 10;

    intz = y/x;

  }

}
```

A) Compile error B) Compiles and runs

D) Compiles fine, but throws ArithmeticException exceptionC) Nothings happens

9) Is the following declaration for interface Bendable correct and free of compilation error?

```
abstract interface Bendable // line 1

{

        finalint x = 2009; // line 3

        void method1() ; // line 5

        public static class Angle {} //line 6

}
```

A) Yes, this is a correct and free of error declaration
B) No, compilation error at line 1 , abstract should be removed
C) No, compilation error at line 3 , x should be declared public final
D) No, compilation error at line 5 , method method1() should be declared public abstract

10) Which of the following variables is incorrectly declared?

```
public abstract interface Bouncable
{
        int a = 0;
        publicint b = 1;
        public static int c = 2;
        public static transient int d = 3;
        public final int e = 3;
        public static final int f = 3;
}
```

A) a B) b C) c
D) d E) e B) f

11) Three of the methods are incorrectly declared. Which are they?

```
public abstract class Tester
{
        public void test1();
        public final void test2() {};
        public static void test3() {};
        public abstract static void test4();
        public abstract final void test5();
}
```

A) test1 , test2 and test4 B) test2 , test4 and test5
C) test1 , test4 and test5

12) Are the following declarations correct, if you knew that they are in the same package?

```
interfaceBouncable{ } // line 1
interfaceColorable extends Bouncable{ } // line 2
class Super implements Colorable{ } // line 3
class Sub implements Colorable extends Super { } // line 4
```

A) Yes, the declarations are correct
B) No there is a compilation error at line 2, must implements not extends
C) No there is a compilation error at line 4, over implementing for interface Colorable, Super isalready implementing it
D) No there is a compilation error at line 4, extends should come before implements

13) What is the result of compiling and running the following code?

```
public class Tester
{
        static void test(int [ ] a)
        {
                int [ ] b = new int[2];
                a = b;
                System.out.print(b.length);
                System.out.print(a.length);
        }
        public static void main(String[ ] args)
        {
                int[ ] a = new int[5];
                test(a);
                System.out.print(a.length);
        }
}
```

A) 225 B) 255
C) 200 D) 222

Questions 14 – 15 refer to the following code

```
1.      int sum = 0;
2.      inti = 0;
3.      while (i< 5)
4.      {
5.              sum = sum + i;
6.              i++;
7.      }
8.      System.out.print(i);
9.      System.out.print(" ");
10.     System.out.print(sum);
```

14) What is the value of i when line 8 is executed?

A) 6 B) 5
C) 4 D) 3

15) What is the value of *sum* when System.out.print(sum) is executed?

A) 6 B) 10

C) 15 D) 21

16) You have two packages, trunk1 and trunk2 where class Sheet declared in trunk1and class Container declared in trunk2, the following code contains a compilation error, where could it be?

```
package trunk1;
public class Sheet
{
        public static intpageNumber = 99; // line 1
        Sheet() {} // line 2
}

package trunk2;
import trunk1.Sheet;
public class Container
{
        public static void main(String... args)
        { //line 1
                System.out.print(Sheet.pageNumber); //line 2
                Sheet sheet = new Sheet(); //line 3
        }
}
```

A) In package trunk1 at line 2, constructor Sheet must be marked public like its class
B) In package trunk2 at line 1, invalid string argument for method main()
C) In package trunk2 at line 2, invalid access to member pageNumber
D) In package trunk2 at line 3, invalid call to constructor Sheet()

17) Which of these statements about constructors is *false*?
A) A constructor has a return type
B) Its name must be the same as the class in which it is defined
C) Constructors are almost always declared as public
D) They can appear anywhere in the class where it is legal to declare a method

18) Which of the following is correct terminology about inheritance?
A) We *extend* from a base class and *implement* an interface
B) We *implement* a base class and *extend* from an interface
C) We *extend* from a subclass and *implement* a base class
D) We *implement* from a subclass and *extend* an interface

19) Which of these statements is legal?
A) Public class Book
B) Class Book
C) class book
E) public Class book

20) What is the expected output?

```
public class OuterTest
{
        public static void main(String args[])
        {
                Airplane airplane = new Airplane(); //line 5
                Airplane.BlackBox box = airplane.newBlackBox(); // line 6
                box.printVariables();
        }
}
class Airplane
{
        String code = "11";
        classBlackBox
        {
                String code = "22";
                public void printVariables()
                {
                        System.out.print(code); // line 19
                        System.out.print(Airplane.this.code); // line 20
                }
        }
}
```

A) Compile error because of lines 5-6 (incorrect instantiation)
B) Compile error because of line 20 (can't access Airplane's variables)
C) 2222
D) 1111
E) 2211

21) What is the expected output of the following code?

```
class Plant
{
        Plant()
        {
                System.out.println("Plant created");
        }
}
class Tree extends Plant
{
        Tree()
        {
                super();
                System.out.println("Tree created");
        }
}
public class Test
{
        public static void main(String args[])
        {
                Tree tree = new Tree();
        }
}
```

A) Plant created Tree created

B) Tree created Plant created

C) RuntimeException

D) Compilation error

22) Among the following code fragments, circle the one that will ***not*** cause a compile-time error.

A) int[] a = int[10];

B) int[] a = new int[10];

C) int[10] a = new int[10];

D) int[] a = {1, 2, 3, e};

23) The Java compiler produces

A) Java bytecode
B) machine language
C) assembly language
D) an html file

24) Which of the following is true?

A) If a class is declared abstract , it must contain at least one abstract method
B) If a class is declared abstract , all its methods must be abstract
C) A method can either be final or abstract
D) An Abstract method has no body and ends with a semicolon

25) What is the primary purpose of a constructor?

A) To allow multiple classes to be used in a single program.
B) To copy an actual argument to a method's parameter.
C) To initialize each object as it is declared.
D) To maintain a count of how many objects of a class have been created.

26) Suppose that a package edu.colorado.foo has two classes Goo and Hoo. Which statement will import both these classes?

A) import edu.colorado.*

B) import edu.colorado.all

C) import edu.colorado.Goo-Hoo

D) import edu.colorado.Goo;Hoo

E) None of the above.

27) Can two different classes contain methods with the same name?

A) No.
B) Yes, but only if the two classes have the same name.
C) Yes, but only if the main program does not create objects of both kinds.
D) Yes, this is always allowed.

28) What's the connection between public classes and .java file names?

A) The file can have at most one public class; if present, it must have the samename as the file.
B) The file must have at least one public class and none of them can have thesame name as the file.
C) It is common practice to name a file after one of the public classes in it, butJava does not require it.
D) If the file does not contain a public class, its name must not match the namesof any of the classes in it.
E) There is no connection!

29) Which restriction is not true about interfaces?

A) It must not have any fields.
B) All methods must be abstract.
C) Only public methods are allowed.
D) A class can implement only one interface.

30) Which of the following statements about applets is false?

A) An applet is a class that must be derived from the Java Applet class
B) An applet is invoked from HTML statements, rather than a "main()"
C) An applet almost always overrides the paint() method
D) An applet must be compiled into a .class files before it can be used

31) What are the legal modifiers which the constructor can be declared with? Please choose all the answers that apply:

A) public B) protected C) private
D) final E) static F) abstract

32) Given the following declarations, what is considered a correct statement?

```
interface Chewable {}
interface Eatable extends Chewable{}
class Vitamin{}
class Food implements Eatable { Vitamin[]
vitamins;}
```

A) Eatable is Chewable
B) Vitamin is Eatable
C) Food is Chewable
D) Food is an Object

33) Consider the following two classes declared and defined in two different packages, what can be added in class B to form what is considered a correct access to class A from main() method of class B?

```
packagesubPackage;
public class A { }

packageanotherPackage;
// line 1
public class B
{
        public static void main(String[] args)
        {
                // line 2
        }
}
```

A) at line 1 add nothing
   at line 2 add : new A();

B) at line 1 add: import package.*;
   at line 2 add : new subPackage.A();

C) at line 1 add: import subPackage.*;
   at line 2 add : new A();

D) at line 1 add: import subPackage.A;
   at line 2 add : new A();

E) at line 1 add nothing
   at line 2 add : new subPackage.A();

SECTION B:

Given the following code.

```
import java.io.*;

public class WritingOnFile
{
        public static void main(String[] args) throws IOException
        {
                FileWriter f = new FileWriter("test.txt"); // line 1
                PrintWriter out = new PrintWriter(f); // line 2
                out.println("some text written on a file"); // line 3
                out.close(); // line 4
                f.close(); // line 5
        }
}
```

34) What is the purpose of lines 1 to 5 [2 Marks Each]

35) What is the difference between an error and exception in java? [2 Marks]

36) What are checked and unchecked exceptions in java? [2 Marks]

37) Some people (and textbooks) have said that allowing classes to implement multiple interfaces is the same thing as multiple inheritance. This is false. Give one reason why this is false. [2 Marks]

38) What is inheritance? [2 Marks]

39) Below class ABC doesn't have even a single abstract method, but it has been declared as abstract. Is it correct?

[2 Marks]

```
abstractclassABC
{
   voidfirstMethod()
   {
      System.out.println("First Method");
   }

   voidsecondMethod()
   {
      System.out.println("Second Method");
   }
}
```

40) Why is the below class showing compilation error?

[2 Marks]

```
abstractclassAbstractClass
{
   abstractvoidabstractMethod()
   {
      System.out.println("First Method");
   }
}
```

41) Which class is instantiable? Class A or Class B?

[2 Marks]

```
abstractclassA
{
}

classB extendsA
{
}
```

42) For each pair of classes X and Y below, put a check mark in the appropriate column, saying whether X should be a subclass of Y, Y should be a subclass of X, or there should be no

inheritance; rather, one should be a member of the other (aggregation).

[2 Marks each]

Class X	Class Y	X a subclass of Y	Y a subclass of X	Aggregation
Student	Course			
Computer	Laptop			
Patient	Medication			
Commodities	Food Items			

Good Luck!