CS 113 MIDTERM EXAM 1
SPRING 2013

There are 17 questions on this test. The value of each question is:

1-15 multiple choice (4 pts)
16-17 coding problems (20 pts)

You may get partial credit for questions 16 and 17. If you finish early, use the extra time to double check your work. You may use the summary of Java language elements that is provided. You may not use notes, books or electronic devices of any sort. All cell phones and other mobile devices must be turned off during the exam.

Good luck!

Name ___________________________ Student ID _______________________

Section _________

Answers for Questions 1 to 15

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EXAM SCORES

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1. The main method header is written as:

   A. public void main(String[ ] args)
   B. public static void main(String[ ] args)
   C. public static main(String[ ] args)
   D. public static void Main(String[ ] args)
   E. public static void main(string[ ] args)

2. To assign a double variable d to a float variable x, you write

   A. x = (long)d
   B. x = (float)d;
   C. x = d;
   D. x = (int)d;
   E. d = x;

3. An application program must have:

   A. at least 2 methods
   B. at least 2 classes
   C. a main method
   D. a non-static method
   E. an import statement

4. Java compiler translates Java source code into ________.

   A. machine code
   B. another high-level language code
   C. assembly code
   D. Java bytecode
   E. none of the above

5. System.in refers to:

   A. the printer
   B. the class
   C. the keyboard
   D. the monitor
   E. none of these

6. Objects in java are defined by a:

   A. declaration
   B. class
   C. method
   D. primitive
   E. none of these
7. To define a class that will represent a car, which of the following definitions is most appropriate?

A. private class car
B. public class car
C. public class Car
D. public class CAR
E. private class Car

8. Which of the following reserved words in Java is used to create an instance of a class?

A. class
B. public
C. public or private, either could be used
D. import
E. new

9. Select the valid java identifier:

A. 8+9
B. class
C. radius2
D. 9X
E. test^1

10. Suppose a Scanner object is created as follows:

   Scanner input = new Scanner(System.in);

   What method do you use to read an int value?

   A. input.int();
   B. input.nextInt();
   C. input.nextInt();
   D. input.integer();

11. Select the statement that declares a constant float named “tax” and sets it to 15%:

   A. const float TAX = 15%;
   B. final float “TAX” = .15;
   C. final TAX float = 0.15;
   D. final float TAX = 0.15;
   E. final float TAX = 15%;
12. Which properties are true of String objects?

A. Their lengths never change
B. The shortest string has zero length
C. Individual characters within a String may be changed using the replace method
D. The index of the first character in a string is one
E. Only A and B are true

13. The expression (int)(76.0252175 * 100) / 100 evaluates to ________.

A. 76.03
B. 76.02
C. 76
D. 76.0252175

14. If the String major = "Computer Science", what is returned by major.substring(3,6)?

A. “mpu”
B. “put”
C. “mput”
D. “pute”
E. “mputer”

15. Which of the following will yield a pseudorandom float number in the range [ -5, +5 ) given the following:
   Random gen = new Random( );

A. gen.nextFloat( ) * 5
B. gen.nextFloat( ) * 10 - 5
C. gen.nextFloat( ) * 5 - 10
D. gen.nextInt( ) * 10 - 5
E. gen.nextInt(10) - 5

16. Write an application called CoinApp that will ask the user to input some number of cents (less than 100). The program will output the number of quarters, dimes, nickels and pennies needed to add up to that amount.

ex: if the user enters 87, the application displays 3 quarters, 1 dimes, 0 nickels, 2 pennies

17. Implement an application RandomChars. The application will ask the user to enter a string and display two random characters from that string.

ex: if the user enters computer science, then two characters displayed could be: mc
PROBLEM 16 SOLUTION
PROBLEM 17 SOLUTION
Useful java programming elements

**Scanner Class**

Scanner(InputStream source)
Scanner(File source)
Scanner(String source)
String next()
String nextLine()
String nextDouble()
String nextInt()
String nextFloat()

**String Class**

String(String str)
char charAt(int index)
String substring(int offset)
String substring(int offset, int endIndex)
int length()

**Random Class**

Random()
float nextFloat()
int nextInt()
int nextInt(int num)

**Math Class**

static double random()
static double pow(double num, double power)