

1. Matching Terms [5 pts]

Select the **best** word for each of the following definitions:

1. _____ A piece of text appearing in the program source which is intended as an explanation to people reading the code- it is ignored by the compiler
2. _____ The operator which instantiates a class by allocating memory for an object
3. _____ A word that has special meaning in a programming language and cannot be used by the programmer as the name of a variable or method
4. _____ Specifies the name, parameters, and body for a method
5. _____ A program which translates source code into a form that is understandable by a computer

- A. Encapsulation
- B. Local variable
- C. Method specifier
- D. new
- E. Method definition
- F. Logic error
- G. Constant
- H. Overloaded Methods
- I. Compiler
- J. Lambda
- K. Reserved Word
- L. Comment

Table of ASCII Character Values

This page contains the ASCII Character table, which you may find to be useful reference for question number 2 on the next page.

0 nul	1 soh	2 stx	3 etx	4 eot	5 enq	6 ack	7 bel
8 bs	9 ht	10 nl	11 vt	12 np	13 cr	14 so	15 si
16 dle	17 dc1	18 dc2	19 dc3	20 dc4	21 nak	22 syn	23 etb
24 can	25 em	26 sub	27 esc	28 fs	29 gs	30 rs	31 us
32 sp	33 !	34 "	35 #	36 \$	37 %	38 &	39 '
40 (41)	42 *	43 +	44 ,	45 -	46 .	47 /
48 0	49 1	50 2	51 3	52 4	53 5	54 6	55 7
56 8	57 9	58 :	59 ;	60 <	61 =	62 >	63 ?
64 @	65 A	66 B	67 C	68 D	69 E	70 F	71 G
72 H	73 I	74 J	75 K	76 L	77 M	78 N	79 O
80 P	81 Q	82 R	83 S	84 T	85 U	86 V	87 W
88 X	89 Y	90 Z	91 [92 \	93]	94 ^	95 _
96 `	97 a	98 b	99 c	100 d	101 e	102 f	103 g
104 h	105 i	106 j	107 k	108 l	109 m	110 n	111 o
112 p	113 q	114 r	115 s	116 t	117 u	118 v	119 w
120 x	121 y	122 z	123 {	124	125 }	126 ~	127 del

2. Datatypes and Casting [10 pts]

For each of the following, write the output to the screen when the code fragment is executed, or "NOT LEGAL" if the code fragment would result in a compiler error.

- 1 (a) `char c = (char)('!' + 9);`
`System.out.println(c);`
- 1 (b) `double d=16/5;`
`System.out.println(d);`
- 1 (c) `System.out.println('B'*d');`
- 1 (d) `short s=8;`
`s++;`
`int x=s;`
`System.out.println(x)`
- 1 (e) `float f = 1.7;`
`System.out.println(f);`
- 5 (f) Write the method `numToCharDigit` which takes an integer, `n`, ($0 \leq n < 10$) and returns the character that represents the number `n`. For example, `numToCharDigit(3)='3'`
You may not use any decision constructs (if/else or switch/case) to implement this method. If you attempt to use any decision constructs, you will receive no credit.
`public char numToCharDigit(int n) {`
- `}`

3. Printing [15 pts]

Write the class **ThurPrinter** so that it prints the String "Emacs" to the screen when the class is run.

4. Java Commands [6 points]

- 2 (a) What command do you type at the command prompt to compile all of the java files in the current directory?
- 2 (b) What command do you type at the command prompt to run the class you wrote in problem 3?
- 2 (c) What command do you type at the command prompt to generate html documentation files from the comments in your program for all java files in the current directory?

5. Accessors and Mutators [19 pts]

Write the class **HardDrive**, which should have one instance field, **size** of type **int**. This field should be declared so that it is visible only within the **HardDrive** class. You should also write an accessor method and a mutator method for this field. The accessor method and mutator method should be visible to any class.

6. Decisions [15 pts]

Write the method `public String checkGreater(double a, double b)` which takes two doubles, and returns the String "Greater" if `a` is greater than `b`, and the String "Not Greater" otherwise.

```
public String checkGreater(double a, double b) {
```

```
}
```

7. Loops (Iteration) [15 pts]

Write the method **public int product(int x)** which returns the product of the integers between 1 and **x** (inclusive). For example, `product(3)` would return 6. You **MUST** use a loop to solve this problem. If you attempt to solve the problem via any other means than iteration, you will receive no credit for this problem (i.e. if you use recursion, if you use a closed form solution, etc). You may assume **x** > 0

```
public int product(int x) {
```

```
}
```

8. Tracing [15 pts]

What is the output when the following code segment is executed?

```
int x=6;
int y=10;
System.out.println("begin");
if(x>=y){
    System.out.println("way to go");
}
else{
    System.out.println("really?");
}
System.out.println((false || true) && false);
System.out.println((true && false) || true);
while(x<y){
    System.out.println(x+" "+y);
    x+=2;
    y++;
}
System.out.println("y= "+y);
System.out.println("x= "+x);
```