**Topics to know (Drill the Book)**

**To succeed on this exam, you should be able to:**

\* Read a small section of code (involving if, for, while, arrays) and tell what it does

If (conditoin) {run this}

For(int = 0;condition;do this) {run this until condition}

While(true){infinite run}

Arrays (store value in lines) Scanner s = new Scanner(f);

while (s.hasNextLine()) {

String line = s.nextLine();

filename.add(line)};

\* Know the difference between = (assignment) and == (equality)

= assignment is to put value in the variable

== equality is to compare two values and works if both are the same

\* Know the rules for choosing correct variable (and method) names in Java

=Rules

- Variable names cannot be Java keywords.

- variable names cannot start with number.

=Convention

find variable in ALL\_CAPS

regular variable startWithA

rules for method = same as regular method

class name start with UpperCase letter

\*Be aware of the different data types in Java, and when to use each.

\*Know how to use the boolean operators: &&, ||, !

&& (and) associate

|| (or) commutative

! is not

\*Know how to use the comparison operators: ==, !=, <, >, <=, >=

Compare values, == : both are same is ture, != both are not same is true

\*Identify, explain, and correct bugs in a short segment of Java code

/Cannot find symbol or cannot resolve symbol : no method found, wrong method name

/’;’ expected : missing ;

/exception in thread “main” java.lang.NoSuchMethodError : main : method errors

/exception in thread “main” java.lang.NoClassDefFoundError : Hello : class errors

/illegal start of expression : open with ( or { and didn’t close. If or for field has errors.

/class, interface, or enum expected : check {} numbers and make sure all located well

\*Know how to create and use a multi-dimensional array

Int[][] name = new int[#][#];

\*Explain the difference between an array and an ArrayList

array || fixed-legth -never grow or shrink

nice syntax[]

ArrayList || Variable-length -grow or

add(), get(), inset

\*Explain how to read/write data in an array

Int [] score;

Score = new int [#];

\*Explain how to read/write data in an ArrayList

ArrayList<String> name = new ArrayList<>(); name.get(line);

Name.size(line);

\*Use the "order of operations" rules to compute a value

High to low

(++,--,+,-,~,!) - (\* / %) – (+,-) – (<, >, <=, >=, ==, !=)– (&, ^, |, &&, ||)– (?, :)– (=, \*=, /=, %=, +=, -=, <<=, >>=, ….)

? : absolute value

\*Know the difference between integer and floating-point division

Float has 32bits, double has 64bits floating-point division (3.1415 = 0.31415\*10)

Int is 4byte and float is 4byte and double is 4byte

Casting uses thing to change x = (to chang this) y

\*Know what the % operator does

% is finding remains

\*Use the standard Graphics methods to draw a picture

Paint (Graphics g)

g.setColor(new Color(coordinate))

g.fillRect(x,y,width,length)

g.fillOval(x,y,width,length)

g.drawString(“msg”, x, y)

\*Use the shortcut operators, like +=, -=, \*=, /=, ++, --

+= i+=3; (i = i+3), -=, \*=, /=

++ : increase value one by one

-- : decrease value one by one

\*Know when to use "final"

Final in variable “cannot change I am an integer”

In method “cannot define me, no change”

In class “I am who I am”

\*Know the difference between a compiled language and an interpreted language

Compiled language is to put into virtual machine and interpreted is for us to make program

\*Convert between int's and double's (by typecasting)

Int x = (double) y

\*Convert between Strings and integers (NOT by typecasting)

convert numbers

string a = "5"

string b = "3"

int a2 = Interger.parseInt(a)

int b2 = Interger.parseInt(b)

\*Convert between for loops and while loops, and know when to use each

For

While

\*"split" a String into an array of shorter Strings

String foo = "Was it a rat I saw?"

Strg[] words = foo.split(" ")

\*Explain the usefulness of the @Override annotation

Overwrite upper class, using same method (same name, same method, same return type)

\*Know how to handle an exception using a try/catch block

Try { if file name given exist }, catch { if file name given not exist }

\*Know the basic steps for reading in a file

String filename = “name”;

File f = new File (filename);

\*Be familiar with basic vocabulary terms, including but not necessarily limited to:

- variable

Boolean(true, false), char(), byte, short, int, long, float(7자리 소수), double (16자리 소수)

- comment

Using // or \*/ /\*

- block

- keyword

Boolean break byte case catch abstract char class continue default do double else enum extends false final finally float for if implement import instanceof int interface long native new null package private protected

Public return short static strictfp super switch synchronized this throw throws transient true try void volatile

- constant

- declare (a variable)

- parts of a method: modifier, return type, signature (name + formal parameters), body

Viod int

String tmp = JOptionPane.showInputDialog("msg")

int = Integer.parseInt(tmp)

- field

In class,

- local variable

String (line)

Variables that can be used in the certain condition like if or while methods

- array

- formal parameter

define variable

condtion

- actual parameter

- typecasting

Change words to symbols or the other way

- parallel arrays

Have the same variable (eg i) has two arrays and one array.get(i) return to another array.get(i)

- index

Index is to search characters or numbers

- loop

- nesting

- overloading

Using new method

- concatenation

String1.concat(string2); or using +

- exception

Try and catch - catch (FileNotFoundException e)

- virtual machine

Read the compiled program into hardware or software

- class

Define and create objects

- magic number

undocumented numbers

bad thing

find int number of atoms in cheese craker = 53280

- Boolean

Logical it has only true and false value