



ITCS106/113 Computer Programming I

Midterm Exam Revision

```
public class className
```

```
{
```

```
    public static void main (String [] args)
```

```
    {
```

*class
body*

```
}
```

```
}
```

Type Variable;

data types in java

Integers

- byte
- short
- int
- long

floating point

- float 4 bytes
- double 8 bytes

char

'a'

boolean

true false

Variable = Expression;

int age = 18 + 5;



Type Variable1, Variable2, ... ;

int x

int y

int z

int x, y, z ;

```
import java.util.Scanner;
```

```
Scanner kbd = new Scanner(System.in);
```

(Note: 'kbd' is circled in yellow and 'input' is written below it in the original image)

(4) Which of the following statements correctly creates a Scanner object for keyboard input?

- (a) Scanner kbd = new Scanner(System.keyboard);
- (b) Scanner keyboard = new Scanner(System.in);
- (c) Scanner keyboard(System.in);
- (d) Keyboard scanner = new Keyboard(System.in);

Kbd.nextInt();
Kbd.nextDouble();
~ .nextLong();
~ .next();
~ .nextLine();
Kbd.next().charAt(0);

(3) Which of the following is not a method of Scanner class?

- (a) nextByte()
- (b) next()
- (c) nextChar()
- (d) none of the above

$()$
 $*$ $/$ $\%$ $\swarrow$
 $+$ $-$

$7 \% 2$

$$\begin{array}{r} 3 \\ 2 \overline{) 7} \\ \underline{6} \\ 1 \end{array}$$

$\text{num} \% 2 == 0$

even

$\text{num} \% 2 == 1$
odd

$\text{int } x = 2;$

$\text{System.out.println}(\underline{x++});$

$\text{System.out.print}(x);$

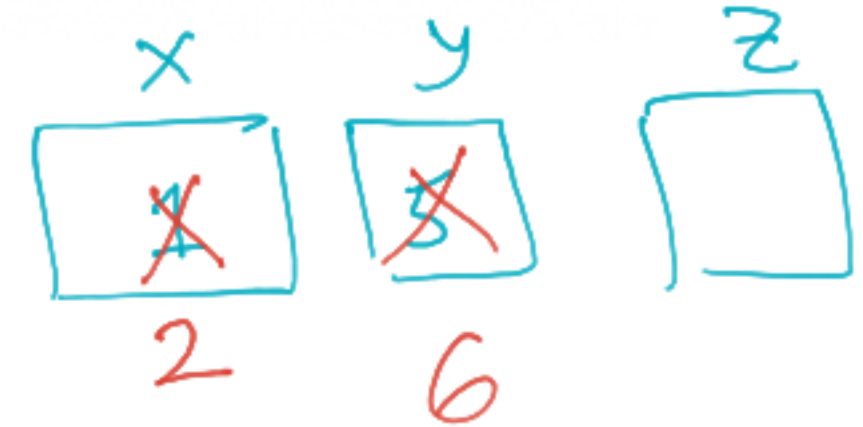
x
 $\boxed{2}$

(1) After executing the code, what will be the values of x, y and z?

- (a) $x = 2, y = 6, z = -7$
- (b) $x = 2, y = 5, z = -7$
- (c) $x = 2, y = 6, z = 3$
- (d) $x = 2, y = 5, z = 3$

```
int x, y, z;  
x = 1;  
y = 5;  
z = 0 - (++x) + y++;
```

S.o.p (y),



$$-2 + 5$$

$$z = 0 - 2 + 5$$

$$z = 3$$

(7) After executing the code, what will be the output?

- (a) $x = 27, y = 3.333, z = 18$
- (b) $x = 27, y = 2, z = 18$
- (c) $x = 37, y = -14, z = 4$
- (d) $x = 27, y = 3, z = 18$

```
int x = 15, y = 20, z = 32;  
x += 12;  
y /= 6;  
z -= 14;  
System.out.println("x = " + x +  
", y = " + y +  
", z = " + z);
```

x
~~15~~
27

y
~~20~~
3

z
~~32~~
18

$x += 12;$

$y /= 6;$

$y = y / 6;$

(5) What is the Java expression for $4a^2 + 2b \times c$?

(a) ~~$(4 * a) + (2 * b) * c$~~

(b) $(4 * a * a) + ((2 * b) * c)$

(c) $((4 * a * a) + (2 * b)) * c$

(d) $(4 + a * a) + ((2 + b) * c)$

$$4a^2 + (2b \times c)$$

$$(4 * a * a) + ((2 * b) * c)$$

The class String:

String st1 = "Java";
String st2 = "JAVA";

① length

S.O.P (st1.length()); 4
8

② charAt (index)

S.O.P (st1.charAt (2)); ✓

③ equals (a-string)

st1.equals (st2)

④ equalsIgnoreCase()

indexOf (a-string)

String st1 = "java";

st1.indexOf("a");

1

st1.lastIndexOf("a");

3

toLowerCase();

toUpperCase();

s.o.p(st1.toUpperCase());

s.o.p(st1);

JaVa

replace (oldchar, new char)

String s1 = "java";

s.o.p(s1.replace('a', 'o'));

substring (start)

s.o.p(s1.substring(2)); va

substring (start, end)
end - 1

s1.substring(2, 3);
✓

○ CompareTo (a-String)

Negative

positive

String s1 = "A";
" s2 = "Z";

s1.CompareTo s2

s2.CompareTo s1

-25

Negative

90

Z

101

a

Z

Z

*
Concat

trim()

(2) Suppose you have the string `s="SELECT"`. What is the return value of `s.substring(0, 5)`?

- (a) "SELE"
- (b) "ELECT"
- (c) "SELECT"
- (d) "SELEC"

`s.op(s1 + "two")`;

(8) After executing the code, what will be the output?

- (a) one
- (b) two
- (c) onetwo
- (d) twoone

```
String s1 = "one";  
String s2 = s1.concat("two");
```

(9) After executing the code, what will be the output?

- (a) JAVA a ++Java
- (b) JAVA a JAVA++
- (c) JAVA v Java++
- (d) JAVA v ++JAVA

0 1 2 3

```
String str = "Java";  
System.out.print(str.toUpperCase() +  
" ");  
System.out.print(str.charAt(2) + "  
");  
System.out.print(str.concat("++"));
```

\n new Line

\t tab

//

"

'

(10) Which of the following statement prints smith\exam1\test.txt ?

- (a) System.out.println("smith\exam1\test.txt");
- (b) System.out.println("smith\\exam1\\test.txt");
- (c) System.out.println("smith\"exam1\"test.txt");
- (d) System.out.println("smith"\exam1"\test.txt");

//

rf

/

1,

(11) The expression $(\text{int})(76.0252175 * 100) / 100$ evaluates to

(a) 76.02

(b) 76

(c) 76.025215

(d) 76.03

$7600 / 100$

76

(12) Which of the following statements are the same?

(1) $x -= (x + 4)$

(2) $x = x + 4 - x$

(3) $x = x - (x + 4)$

(a) (1) and (2) are the same

☒ (b) (1) and (3) are the same

(c) (2) and (3) are the same

(d) (1), (2), and (3) are the same

$$x -= (x + 4)$$
$$x = x - (x + 4)$$

$$x -= 1$$
$$x = x - 1$$

(13) The Bahraini Charity Club is conducting a fundraiser by selling chilli dinners to go. The price is BD2.1 for an adult meal and BD1.2 for a child's meal. Write a Java program that accepts the number of each type of meal ordered and display the total money collected for adult meals, children's meals and all meals.

SAMPLE INPUT/OUTPUT

Enter number of adult and child meals

135 287

Adults Collected Money: BD 283.5

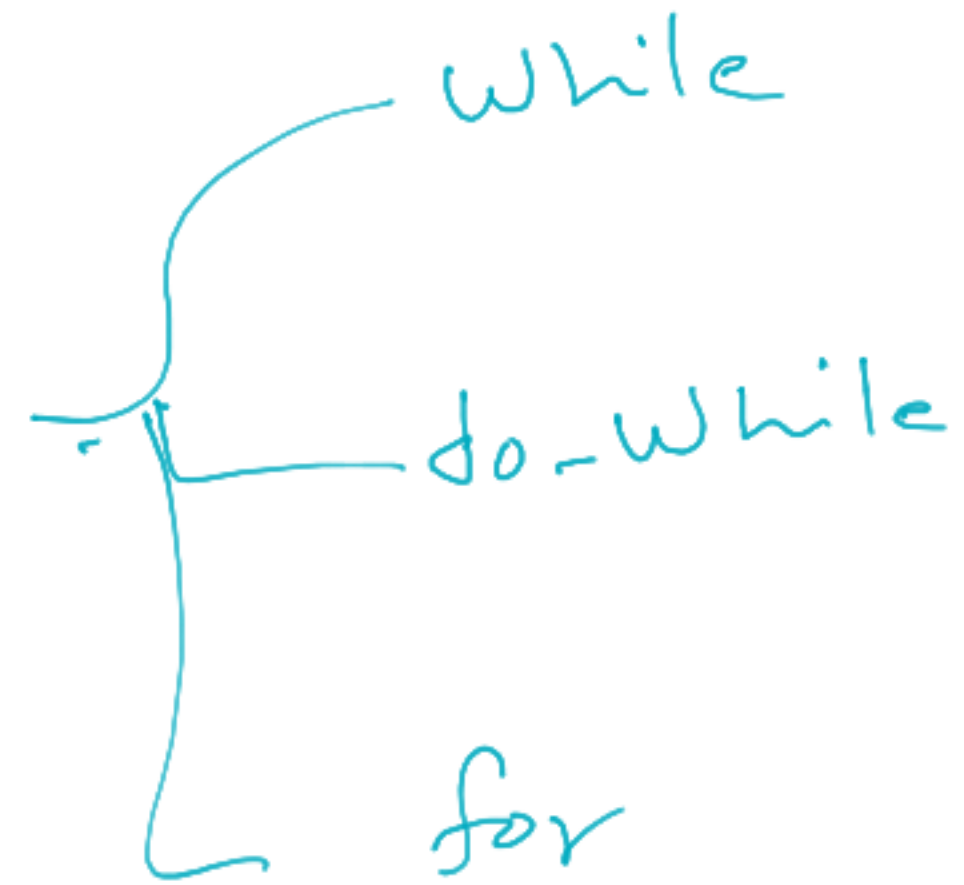
Children Collected Money: BD 344.4

Total Collected Money: BD 627.9

Kbd

```
System.out.println("Enter number of adult and child meals");  
int adult = kbd.nextInt();  
int children = kbd.nextInt();  
double adultmeals = adult * 2.1;  
double childrenmeals = children * 1.2;  
//  
===== + (childrenmeals + adultmeals)
```

Flow of Control



if (boolean-Expression)
statement

```
int x = 10;
```

```
int y = 20;
```

```
if (x > y)
```

10 > 20 ← false

```
System.out.println("OK");
```

```
System.out.println("Done");
```

>=

>

>=

<

<=

==

!=

Done.

&& Logical
and

Return true if both statements
are true.

|| Logical
or

Return true if one of the statements
is true

! Logical
not

Reverse the result.

A	B	$A \&\& B$	$A \parallel B$	$!A$
true	true	true	true	false
true	false	false	true	false
false	true	false	true	true
false	false	false	false	true

(2) Consider the code on the right Which of the following is true?

- (a) ~~If a is true and b is true then the output is "A && B"~~ ✗
- (b) ~~If a is true and b is false then the output is "notB"~~ ✗
- (c) If **a** is false and **b** is true then the output is "ELSE"
- (d) If **a** is false and **b** is false then the output is "ELSE"

a	b	output
true	true	A
true	false	A
false	true	ELSE
false	false	notB

```
// a and b are Boolean variables
if( a )
    System.out.println("A");
else if( a && b )
    System.out.println( "A && B" );
else {
    if ( !b )
        System.out.println( "notB" );
    else
        System.out.println( "ELSE" );
}
```

! false

(3) After executing the code on the right what is the output?

- (a) Boy
- (b) Man
- (c) Girls
- (d) Woman

male
false

age
30

```
boolean male = false;  
int age = 30;  
if( true age <= 30 && false male )  
    if( age < 20 )  
        System.out.println("Boy");  
    else  
        System.out.println("Man");  
else 30 < 20  
    if( age < 20 )  
        System.out.println("Girl");  
    else  
        System.out.println("Woman");
```

(4) After executing the code on the right what will be the values of a and c?

- (a) a = 10, c = 10
- ☒ (b) a = 11, c = 10
- (c) a = 10, c = 11
- (d) a = 11, c = 11

```
int a=10, b=5, c=10;  
if (a>b && a<=c)  
    a = a + 1;  
else  
    c = c + 1;
```

11
true
10 > 5 && true
10 <= 10

Switch (Controlling-Expression)
{

Case 0 : _____ ;
break;

Case 1 :
break;

⋮

default: ==

}

(1) Consider the code on the right?

Which data types are acceptable types for x?

- (a) int and float
- (b) char and double
- (c) int, short, and String
- (d) long, float and double



```
switch(x) {  
    default:  
    System.out.println("Hello");  
}
```

(5) Write a Java program that asks the user to input the weight of a canary bird in grams. The program should determine and display a message the category of the bird's weight according to the following table:

Weight	Category
Between 50 Grams and 100 Grams (inclusive)	Healthy
Under 50 but above 20 OR above 100 but under 130	Critical
All other ranges	Endangered

50 - 100

20 - 50

100 - 130

~~else~~

weight >= 50 && weight <= 100

weight < 50 && weight > 20 ||

weight > 100 && weight < 130

Endangered

(1) After executing the code on the right what is the output?

(a) 6 3 0

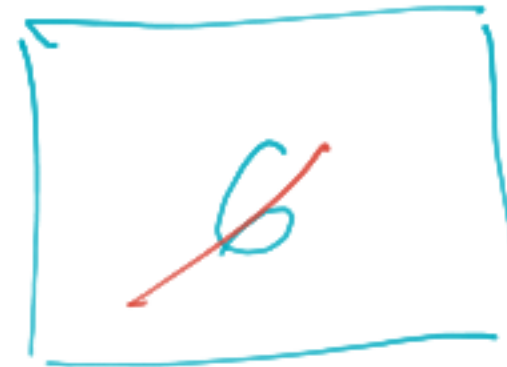
(b) 6 3

(c) 3 0

(d) 3 0 -3

```
int number = 6;
while (number > 0) {
    number -= 3;
    System.out.print(number + " ");
}
```

number



3

0

3 0

(6) After executing the code on the right
what is the output?

- (a) ADC
- (b) ADCD
- (c) AD
- (d) A

ADC

x = 'D';

```
char x = 'A';  
while(x != 'D') {  
    switch(x) {  
        case 'A': System.out.print(x);  
                   x = 'D';  
        case 'B': System.out.print(x);  
                   x = 'C';  
                   break;  
        case 'C': System.out.print(x);  
                   x = 'D';  
        default: continue;  
    }  
}
```

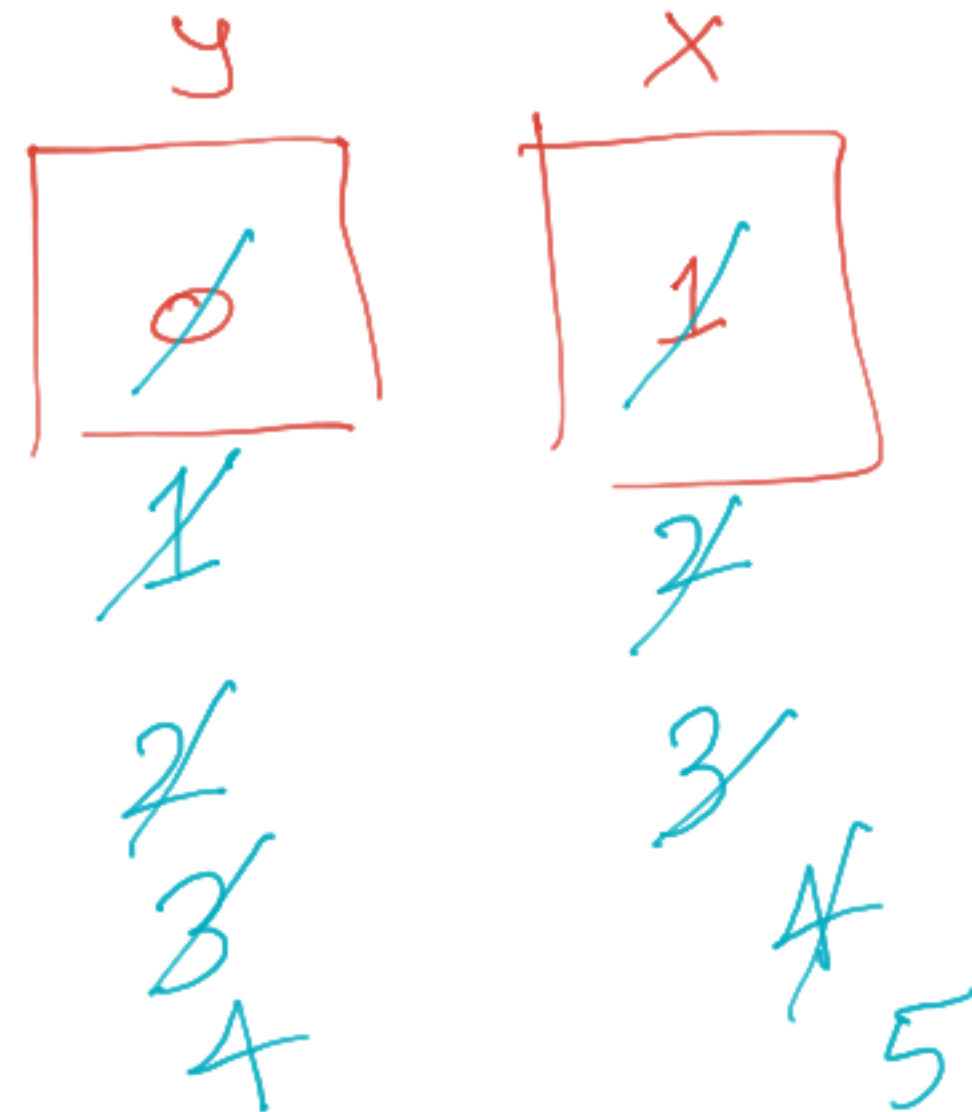
x
D

(2) After executing the code on the right what is the output?

- (a) $y=1$
- (b) $y=3$
- (c) $y=4$
- (d) $y=5$

```
int y=0; ① 5 ≤ 4 ④  
for (int x=1; x ≤ 4 ; x++)  
    y=x;  
System.out.println("y=" + y);
```

$y = 1$



(7) Write a Java program using a **LOOP** to print the date of all Sundays in a month, if the date of the first Sunday is given. First prompt the user to input the number of days in the month, then prompt the user to input the date of the first Sunday in that month. After that find all Sundays in the given month and output. Assume all inputs are valid. Your program must follow the given Sample Input/Output.

SAMPLE INPUT/OUTPUT
Enter number of days in the month:30 Enter the date of first sunday:7 All sundays in the month will be: 7 14 21 28

Enter number of days in the month:30 Enter the date of first sunday:7 All sundays in the month will be: 7 14 21 28
--

Nov

30

7

```
import java.util.Scanner;
```

```
public class AllSunday {
```

```
    public static void main (String [] args) {
```

```
        Scanner kbd = new Scanner (System.in);
```

```
        System.out.print ("Enter number of days in the  
                           month: ");
```

```
        int days = kbd.nextInt();
```

```
        System.out.print ("Enter the date of first  
                           Sunday");
```

```
        int date = kbd.nextInt();
```

days	date
31	5

```
while (date <= days)  
{  
    System.out.print (date + " " );  
    date +=7;  
  
}  
  
} // end class
```