

**Java one
Second Semester
1439-1440H**

Quiz one

Q1: Find and correct errors in the following java program (4 errors) (4 pt)

١٨.٢٥

Line		Correction
1	import java.util.*;	✓
2	public class Exam {	✓
3	Scanner input = new Scanner (System.in); X	static Scanner input = new Scanner (System.in);
4	public static void main (String [] args) {	✓
5	int age;	double age; OK
6	System.out.println("Enter your age" + age); X	System.out.println ("Enter your age"); ✓
7	age = input.nextDouble();	X
8	System.out.println("Is your age above 25? " + (!age>25));	System.out.println ("is your age above 25?" + (!age<=25));
9	}	✓ 0.5
10	}	✓

Q2: What is the output of the following java statements: (3 pt)

Program:		Output:	
int x = 10;		true	✓ 0.5
double y = 20;		x++ = 11	✓ 0.5
boolean fail = false ;		false false	✓ 0.5
System.out.println(!fail);		210	✓ 1.0
System.out.println("x++" + "=11");		6.0	✗ 0.25
System.out.println(fail==true);			
x += 10*y; X= X+(10 X 20) +200 10			
System.out.println(x);	b 3520 10 2		
y= (int)y /3;			
System.out.println(y);			

2.0

Q3: Write one java statement for each of the following: (3 pt)

- a) Declare and initialize a float variable f with value 2.5.

float f = 2.5f; -0.5

- b) Assume you have variables *x* and *y* declared and initialized, in one statement assign the value of *x* to *y* and then decrease the value of *x* by one.

~~int x = 10;~~ post!.

```
int x;  
int y;  
y = x;
```

~~int x(3) y;~~ $y = -x^{\frac{1}{3}}$

~~-0.77~~ -0.5

↑

be careful
next time

3.25

Q1: Find and correct errors in the following java program (4 errors) (4 pt)

9.25 ✘

Line		Correction
1	import java.util.*;	
2	public class Exam {	
3	Scanner input = new Scanner (System.in);	here we should put static in the beginning of scanner
4	public static void main (String [] args) {	
5	int age;	
6	System.out.println("Enter your age" + age);	age there is no value so no output the output is Enter your age
7	age = input.nextDouble();	we should put nextInt() because age is integer
8	System.out.println("Is your age above 25? " + (!age>25));	(!age) is only used with boolean and age is integer not boolean
9	}	so? 0.75
10	}	

2.5

Q2: What is the output of the following java statements: (3 pt)

35/3
18
2

	<u>Output:</u>
<pre>int x = 10; double y = 20; boolean fail = false ; System.out.println(!fail); System.out.println("x++" + "=11"); System.out.println(fail==true); → false x += 10*y; → x=200 System.out.println(x); y= (int)y /3; System.out.println(y);</pre>	<p>True ✓ 0.5 $x++ = 11$ ✓ 0.5 → only println ✘ 210 ✓ 1 6.0 ✓ 0.5</p>

Q3: Write one java statement for each of the following: (3 pt)

- a) Declare and initialize a float variable f with value 2.5.

float f = 2.5f;

- b) Assume you have variables x and y declared and initialized, in one statement assign the value of x to y and then decrease the value of x by one.

$y = x--$

Mid one

Notes:

- Read the questions carefully and write your answers clearly.
- Use ~ for space when necessary.
- We will use (()) when Java statements appear within text.

14.5

0,1,2,3,4,5
str → Rahaff
str New → RAHaff

Question #1: Write some Java statements to do the following :

- 2.5 1. Change the first half of the string str into capital letters. Assume that str has been declared and initialized.

String str₁ = str.substring(0, str.length/2); ✓

String str₂ = str.substring(str.length/2); ✓

System.out.print(str₁.toUpperCase() + str₂); ✓
str → -0.5

2. Print the two strings S1 and S2 in alphabetical order. Assume S1 and S2 are declared and initialized

char ch₁ = S1.charAt(0); -0.25

char ch₂ = S2.charAt(0); ✓ do you know why that is wrong?
if (ch₁ > ch₂) { ← use compareTo -0.5

System.out.println(S2); ✓

System.out.println(S1);

else -0.25

{ System.out.println(S1); }

System.out.println(S2); }

Question #2: Mark the following statements as True (T) or False (F):

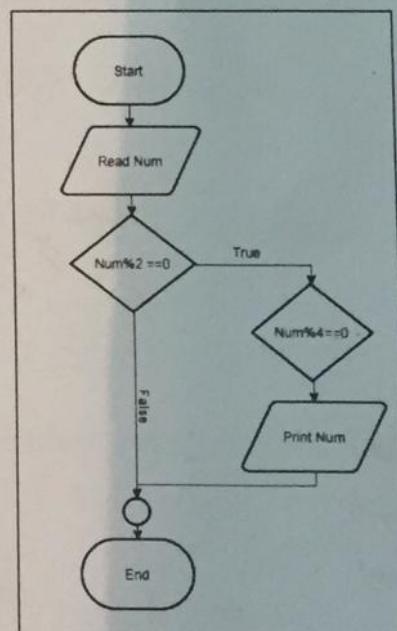
5

Assume we have the following variable declarations and initializations:

```
char      ch = 'Z';  
String    str1 = "KSU";  
String    str2 = "PNU";  
int       num = 1, x = 476983253;  
double    dnum = 2.5;  
float     fnum;
```

Answer true or false, consider each point independently:

1. (F) Java is a platform-independent programming language.
2. (T) A variable of type String is called a reference variable.
3. (F) If there is a logical error in the code, the compiler will tell us.
4. (F) To assign dnum the value 3.0 we **MUST** write: ((dnum = (double) 3;))
5. (F) ch < 'W'
6. (T) ch < 'z'
7. (T) Writing ((str1 = str2;)) will copy "PNU" into the place of "KSU" in memory
8. (T) The output of these ((str1 = str2; System.out.print(str1);)) is: PNU
9. (T) ((fnum += 10.0;)) will cause an error.
10. (T) the statement ((num = x%10;)) will assign the rightmost digit of the integer x to num.
11. (T) The flowchart in figure 1 will print any even number:



Assume you have a scanner to read input called in.

The following cause no errors:

14. (F) ((dnum = in.nextInt();)) if the input is: 34.0
15. (F) ((dnum = in.nextInt();)) if the input is: 34
16. (F) ((ch = in.next().charAt(0);)) if the input is: 340

Figure1

~~12 < 180~~ $(\frac{80}{100} = 0.8)$ ~~(Weight = height - 1m)~~

Question #3:

Correct the following code by re-writing it:

A programmer wants to read some information from a user: Height (in cm), weight (in kg) and the full name. She then wants to inform the user whether the weight is appropriate for the height or not. The weight is appropriate if it is less than or equal (height - 1m). For two runs with this input:

155	51.5173	Muneera F. AlOmar
185	112	Hassan AlSaleh

The expected output should be formatted as follows:

1	2	3	4	5	6	7
1234567890123456789012345678901234567890123456789012345678901234567890						
Muneera F. AlOmar						
Hassan AlSaleh						

But her code does not work correctly. Rewrite the whole code after correcting it.

```

import java.util.*;
public class Mid1Q1
{
    static Scanner read = Scanner (System.out);
    public static void main (String[] args)
    {
        int h;
        double w;
        Boolean app; /* appropriate or not */
        System.out.println("Please enter the following:");
        System.out.println("Your height in cm, your weight in kg, and your full name:");
        h = read.nextDouble(); nextInt();
        w = read.nextDouble();
        String n = read.nextLine();
        app = (w <= h-1) ? "appropriate" : "not appropriate";
        System.out.printf("%s your weight of %8.2fkg is %s.%n", h, w, app, n);
    } // end main
} // end class

```

~~import java.util.*;~~ ~~public class Mid1Q1 {~~ ~~int h;~~ ~~double w;~~ ~~Boolean app;~~ ~~System.out.println("Please enter the following:");~~ ~~System.out.println("Your height in cm, your weight in kg, and your full name:");~~ ~~h = read.nextDouble(); nextInt();~~ ~~w = read.nextDouble();~~ ~~String n = read.nextLine();~~ ~~app = (w <= h-1) ? "appropriate" : "not appropriate";~~ ~~System.out.printf("%s your weight of %8.2fkg is %s.%n", h, w, app, n);~~ ~~}~~ ~~// end main~~ ~~}~~ ~~// end class~~

~~new~~ ~~Static scanner read = Scanner (System.in);~~ ~~0.5~~ ~~comment? 0.25~~

~~int h; double w; boolean app; String n;~~ ~~0.25~~ ~~OK~~

~~System.out.Println("Please enter you height in cm, your weight in kg, and your full name:");~~

~~h = read.nextInt(); 0.5~~

~~w = read.nextDouble();~~

~~n = read.next.nextLine(); 0.5~~

~~app = (w <= h-1)? "appropriate": "not appropriate";~~ ~~0.5~~

~~System.out.Printf("%s %t your weight of %8.2fkg is %b %n", n, w, app);~~ ~~0.25~~ ~~OK~~ ~~0.5~~

~~3 //end main 2-19s x~~

~~3 //end class .~~

Quiz two

Question 1: MCQ:

[3pt]

Chose the correct answer by filling the following table, only one choice applies:

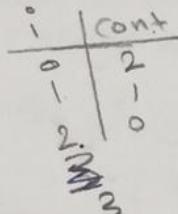
V. good

1	2	3	4	5
C ✓	A ✓	B ✓	C ✓	B ✓

1. The output of the following code segment is:

```
int count=3;
for (int i = 0; i<3; i++);
count--;
System.out.print
("i="+i+" count="+count);
```

- A. i=0 count=3
- B. i=3 count=2
- C. i=3 count=0
- D. i=0 count=2



2. After the loop num can hold:

```
Scanner input= new Scanner
(System.in);
int num;
do{
    num=input.nextInt();
}while(num>=0);
```

- A. Any integer value
- B. zero
- C. Positive numbers only, but not zero
- D. Negative numbers only

3. The following loop will execute:

```
int N=50;
do{
    N--;
}while(N<20);
```

- A. 0 iterations
- B. 1 iteration
- C. 30 iterations
- D. 50 iterations

4. After the execution of the following code segment the value of result will be:

```
int x = 10, result=0;
while(x>0)
{x--;
if(x%2 == 0)
    continue;
result++;}✓✓✓✓✓✓
```

- A. 0
- B. 1
- C. 5
- D. 10

5. The following for loop is equivalent to

```
for(int x=0; x<10; x++)
System.out.println(x);
```

A. int x=0;
while(x<10)
System.out.println(x);

B. int x=0;
while(x<10)
System.out.println(x++);

~~C.~~ int x=0;
while(x<10)
System.out.println(++x);

D. int x=0;
do{System.out.println(x);
while(x<10)

Question2: Trace the following code segment [2+1]

12pts

```
int n = 0;
int i = 0;
for (n = 0; n<=3; n++)
for (i = 0; i<2; i++)
{
    System.out.println("Hello ");
    n++;
}
System.out.println( i + n );
```

n	i	output
0.25	0	Hello
	1	Hello
0.25	2	Hello
	3	Hello
4 ^{OK}	2	Hello
0.25	•	5 ^{OK} 0.25

Question3: Write java statements, limit the number of statements you use

[5pts]

1. Compute the sum: $1 + 2^2 + 3^2 + 4^2 + \dots + n^2$. Assume that n is declared and initialized.

2

2 ~~int m = 3;~~
~~for (int i = 1; i <= n; i++)~~
~~m = i * i;~~
~~m = m - 3 * 3 - 4;~~
~~sum = sum + m;~~
~~i = i + 0;~~
~~j = j + 3;~~

```

int m; int sum=0;
for(int i=1; i<=n; i++) {
    m = i*i;
    sum = m + sum;
}

```

2. Using a switch print “weekday”, “weekend”, “invalid day” depending on the value of an integer variable *num*. Assume that *num* has been declared and initialized, and given that: 1: Sunday, 2: Monday, 3: Tuesday, 4: Wednesday, 5: Thursday, 6: Friday, 7:Saturday.

25

~~Switch (num)~~

Case 1:

~~System.out.println("weekday");~~

~~breakfast~~

case 2:
~~System.out.println("weekday");~~

Case 3:

Case 3:
System.out.println("weekday");

broy,
casey:

```
case 4:  
    System.out.println("weekday");
```

~~breathe~~
case 5:

```
case 5:  
    System.out.println("is week day");  
    break;
```

break;

Case 6:

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

~~break~~

case 7:

System.out.println("weekend");

break
do - P

~~desert~~

```
System.out.println("invalid day");
```

Mid two

Assume we have the following methods and variables:

```
public class mid2{
    public static void main(String[] args) {
        char      ch = 'Z';
        String    str = "Java";
        int       x, num = 3;
        double    dnum = 2.25;  $\Rightarrow \text{ceil} = 3$ 
        // some code here
        ...
    } // end main

    public static int doSomething (char c, int n)
    { if (n> 100)
        { c = 'c';
        return n/2; }
        return n++;
    }

    public void OverX (int a, int b) {...}
} // end class mid2
```

Java 999

type bracket

1. (E) Two methods that have the same signature are called overloaded methods.
2. (E) We can overload the method Over by adding this:
public int Over (int x, int y) {...}
3. (I) A method can return at most one value. \rightarrow only one value
4. (E) Any method must return at least one value.
5. (E) In the method doSomething the parameter char c is an actual parameter of the method.
formal

Consider the following calls in the main method:

6. (E) Calling ((x=doSomething(ch, num);)) will copy the value of c to the value of ch.
7. (E) Calling ((System.out.print(ceiling(num));)) will print 4.0
8. (I) Calling ((System.out.print(ceiling(dnum));)) will print 3.0
9. (E) Calling ((num = doSomething(str, 999);)) is valid.
10. (I) Calling ((Over(x, num);)) is valid

Question #2: **Short questions:**

(4 pts.) 2.75

A. Consider the program below and answer the following:

```

1 import java.util.*;
2 public class Mid2 {
3     static Scanner in = new Scanner (System.in);
4     static int raqam = 1;
5     static char harf = 'O';
6
7     public static void main (String[] args) {
8         double w, h; //width and height
9         System.out.println("Enter width and height:");
10        w = getRaqam();3
11        h = getRaqam();2
12        // k?
13        System.out.println(calcArea(w,h)+ " is the area");
14        MakeLine(harf, 2);
15        String jumlah = "I am a CCIS student";
16        char harf = jumlah.charAt(0);
17        MakeLine(harf, (int)Math.pow(3,raqam));
18        // K?
19    } // end main
20
21    public static double getRaqam() {
22        double raqam = in.nextDouble();
23        return raqam;
24    } // end getRaqam
25
26    static int i = 99, k=99;
27
28    public static int calcArea(double w, double h) {
29        int ww = 2;
30        int hh = 5;
31        char harf = '#';
32        #
33        MakeLine(harf,(int)w);3
34        return (ww*hh);2
35    } // end calcArea
36
37    public static void MakeLine(char c, int num) {
38        int i,k;o\2
39        for(i = 0; i<num; i++) {
40            for(k = 2; k>0; k--):
41                System.out.print('*');
42                // k?
43                System.out.print(c);
44
45        System.out.println();
46    } // end MakeLine
47 } // end class

```

1. Assume after line 11 is executed $w=3$ and $h=2$. What will be the output of the remainder of the program?

output of line 13:

~~***#~~ ~~***#~~ ~~***#~~ 0.5
10 is the area 0.5
style 0.5

output of line 14:

~~**0~~ 0.5
~~**0~~

output of line 17:

~~***~~ ~~0~~ ~~0~~ 0.25

2. For each line given below, write the value of k if possible, otherwise write "undefined".

line 12: undefined ~~x~~

line 18: undefined ✗

line 42:

0, 2

Line 13 : **#**

Line 14 : O**O

Line 17 : I**I**I

Question #3: Programming: (11 pts.) 10.5

- A. Write some java code to compute the following equation = $\frac{\sqrt{\log_{10}(x+y)}}{3*x*y}$ and save the result in a variable named *result*.
Assume x and y are double numbers that have been declared and initialized.

1.25
double result = (sqrt(log10(x+y)) / (3*x*y))

- B. Write an appropriate header and the body of a **method** LetterCase that receives a character and prints:

- 1.72
 - "Capital" if the character is a capital letter.
 - "Small" if the character is a small letter.
 - "Not a letter" if the character is not a letter.

Public static void LetterCase(char ch)
{
 if(Character.isUpperCase(ch))
 System.out.println("Capital"); } *named because it is just 1 student.*
 else if(Character.isLowerCase(ch))
 System.out.println("Small"); }
 else
 System.out.println("Not a letter"); }
}

- C. Write a complete java program that determines how many students passed a course.
- Write a method passed that receives the total grade of a student and rounds it up and then returns true if the student passed or false if the student has failed.
 - Write a main method that does the following:
 - prompts the user to enter the number of students.
 - For each student the program reads five exam grades and determines if the student passed or failed the course based on the value of his total grades. (Hint: use the method passed)
 - The program then displays the number of students that passed the course.

7.5

Notes:

- there is no need to validate input, assume correct values will be entered by the user.
- The passing grade is 60 marks.

import java.util.*;

public class Mid2 {

public static void main(String[] args) {

static double tot = 0.0;

public static Scanner read = new Scanner(System.in);

System.out.println("Enter the number of student");

int num = read.nextInt();

for (int i = 1; i <= num; i++) {

for (int k = 1; k <= 5; k++) {

System.out.println("Enter grades");

double grade = read.nextDouble();

tot = tot + grade;

= Passed(tot);

\rightarrow put outside the inner loop, you need to call it once per student

\rightarrow put outside the inner loop, you need to call it once per student

Passed(tot);

System.out.println("the num of pass student is :" + Pass);

~~static int Pass = 0;~~

public static boolean Passed(double tot)

~~int Pass = 0;~~

~~if (Math.ceil(tot) >= 60) {~~

~~Pass++;~~

~~System.out.println("The number of student passed is " + Pass);~~

~~return true;~~

~~return false;~~

~~ok \rightarrow although the description of method passed did NOT say that it contains anything.~~

But I like your solution by using the static variable, that's clever :)