

CSE 101 Final

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1. Which of the following can not be a variable name?

- a) toplam1
- b) double
- c) doubleSum
- d) sum
- e) toplam

2. Which of the following can be used to check the students whose *class* is other than 4 and *GPA* greater than 50?

- a) $(GPA > 50 \text{ and } class == 4)!$
- b) $(GPA > 50 \text{ and } class != 4)$
- c) $(GPA > 50 \ \&\& \text{ class } != 4)$
- d) $(GPA > 50 \ \&\& \text{ class } = 4)$
- e) $(GPA > 50 \ || \text{ class } = 4)$

3. What is the value of integer variable *x* after the execution of the following line?

```
int x = 11 / 2 + 11 / 2 + 3 / 2 + 3 / 2;
```

- a) 0
- b) 16
- c) 14
- d) 12
- e) 10

4. Which of the following expressions result in value 2?

- a) $2 \% 1$
- b) $15 \% 4$
- c) $25 \% 5$
- d) $38 \% 6$
- e) $19 \% 3$

5. Suppose that *x* is a user given 4 digit integer (e.g. 5432), which of the following prints its thousands digit (e.g. 5)?

- a) `System.out.println(x * 1000);`
- b) `System.out.println(x / 1000);`
- c) `System.out.println((x / 1000) / 1000);`
- d) `System.out.println((x % 1000) % 1000);`
- e) `System.out.println(x % 1000);`

6. Which of the following codes is the same as the following code?

```
if (x == 1 || x == 4)
    System.out.println("Done");
else
    if (x >= 2 && x <= 5)
        System.out.println("Not_done");
    else
        System.out.println("Invalid");
```

a)

```
switch (x){
    case 1:
    case 4: System.out.println("Done");
    case 2:
    case 3:
    case 5: System.out.println("Not_done");
}
```

b)

```
switch (x){
    case 1:
    case 4: System.out.println("Done");
        break;
    case 2:
    case 3:
    case 5: System.out.println("Not_done");
        break;
    default: System.out.println("Invalid");
}
```

c)

```
switch (x){
    case 1:
    case 4: System.out.println("Done");
        break;
    case 2:
    case 3:
    case 5: System.out.println("Not_done");
        break;
}
```

d)

```
switch (x){
    case 1:
    case 4: System.out.println("Done");
    case 2:
    case 3:
    case 5: System.out.println("Not_done");
        break;
}
```

e)

```
switch (x){
  case 1:
  case 4: System.out.println("Done");
    break;
  case 2:
  case 3:
  case 5: System.out.println("Not done");
  default: System.out.println(" Invalid");
}
```

7. Which of the following defines a variable of type boolean?

- boolean b1 = 0;
- boolean b2 = Boolean.true();
- boolean b3 = true;
- boolean b4 = 'true';
- boolean b5 = yes;

8. What is the output of the following code, if the user enters 2?

```
int choice = input.nextInt ();
int j = 0;
switch (choice){
  case 0:
    j += 1;
  case 1:
    j += 2;
  case 2:
    j += 3;
  case 3:
    j += 4;
  default:
    j += 5;
}
System.out.println(j);
```

- 2
- 3
- 7
- 10
- 12

9. Which of the following(s) is(are) the correct definition of a method?

- public static void method() {}
- public static void method(int num) {}
- public static double method() {}
- public static void method(boolean b) {}

- 1, 2
- 1
- 1, 2, 3
- 2, 4
- 1, 2, 3, 4

10. Which of the following is the correct way of declaring an array with a size of 5?

- Array a = new Array(5);
- int [] a = new int[5];
- int [a.length] a = {23,22,21,20,19};
- int [] a = new int[a.length];
- int [] a = new int[6];

11. What is the output of the following code?

```
int sum = 0;
int i = 0;
while (i <= 5) {
  sum = sum + i;
  i++;
}
System.out.println(i + " " + sum);
```

- 5 10
- 6 10
- 4 10
- 5 15
- 6 15

12. What will be the output of the following program?

```
int x = 10, y;
if (x == 10){
  y = 20;
  System.out.print(x + " " + y);
  y = x * 2;
}
y = 100;
System.out.print(x + " " + y);
```

- 10 10 10 100
- 10 20 10 20
- 10 20 10 10
- 10 20 20 100
- 10 20 10 100

13. Assume that we have a method which calculates the sum of the elements in an array. Assume that method has a prototype **public static int findSum(int arr[])**. Which one is the correct way to call this method?

- findSum(arr[]);
- int sum = findSum(arr);
- int sum = findSum(arr[arr.length]);
- findSum(int arr[]);
- int [] arr = findSum(arr);

14. Which of the following code fragments generates a random number and asks the user to guess what the number is. If the user's guess is higher than the random number, the program should display "Too high!" If the user's guess is lower than the random number, the program should display "Too low!" The program should use a loop that repeats until the user correctly guesses the random number.

a)

```
Scanner console = new Scanner(System.in);
int number, guess;
number = (int) (Math.random() * 100) + 1;
System.out.print("Enter a guess");
guess = console.nextInt();
while (guess != number){
    if (guess > number)
        System.out.println("Too high!");
    else if (guess < number)
        System.out.println("Too low!");
    System.out.print("Enter another guess");
    guess = console.nextInt();
    System.out.println("Your guess is correct!");
    break;
}
```

b)

```
Scanner console = new Scanner(System.in);
int guess, number = (int) (Math.random() * 100) + 1;
System.out.print("Enter a guess");
guess = console.nextInt();
for (int i = 0; guess < number; i++){
    if (guess > number)
        System.out.println("Too high!");
    else if (guess < number)
        System.out.println("Too low!");
    System.out.print("Enter another guess");
    guess = console.nextInt();
    System.out.println("Your guess is correct!");
    break;
}
```

c)

```
Scanner console = new Scanner(System.in);
int number, guess;
number = (int) (Math.random() * 100) + 1;
System.out.print("Enter a guess:");
guess = console.nextInt();
while (guess != number){
    if (guess != number){
        if (guess > number)
            System.out.println("Too high!");
        else if (guess < number)
            System.out.println("Too low!");
        System.out.print("Enter another guess:");
        guess = console.nextInt();
    }
    System.out.println("Your guess is correct!");
}
```

d)

```
Scanner console = new Scanner(System.in);
int number, guess;
number = (int) (Math.random() * 100) + 1;
System.out.print("Enter a guess");
guess = console.nextInt();
if (guess > number)
    System.out.println("Too high!");
else if (guess < number)
    System.out.println("Too low!");
System.out.println("Your guess is correct!");
```

e)

```
Scanner console = new Scanner(System.in);
int number, guess;
number = (int) (Math.random() * 100) + 1;
while(true){
    System.out.print("Enter a guess:");
    guess = console.nextInt();
    if (guess != number){
        if (guess > number)
            System.out.println("Too high!");
        else if (guess < number)
            System.out.println("Too low!");
    }
    else{
        System.out.println("Your guess is correct!");
        break;
    }
}
```

15. Which method can be used to reverse the content of a given array? (e.g. the reversed array will be {40, 30, 20, 10} when the given array is {10, 20, 30, 40})

a)

```
public static int [] reverse(int a[]) {
    int [] list = {10, 20, 30, 40};
    int tmp = list [ list .length - 1];
    for (int i = 1; i < list .length; i++) {
        list [i] = list [i - 1];
    }
    list [0] = tmp;
    return list ;
}
```

b)

```
public static void reverse(int a[]) {
    int j = a.length;
    for (int i = 0; i < a.length; i++) {
        a[j - 1] = a[i];
        j = j - 1;
    }
}
```

c)

```
public static int [] reverse(int a[]) {
    int j = a.length;
    int [] list = new int[j];
    for (int i = 0; i < a.length; i++) {
        list [j - 1] = a[i];
    }
    return list ;
}
```

d)

```
public static int [] reverse(int a[]) {
    int j = a.length;
    int [] list = new int[j];
    for (int i = 0; i < a.length; i++) {
        list [j - 1] = a[i];
        j = j - 1;
    }
    return list ;
}
```

e)

```
public static int [] reverse(int a[]) {
    int [] list = {10, 20, 30, 40};
    int tmp = list [ list .length];
    for (int i = 0; i < list .length; i++) {
        list [i] = list [i - 1];
    }
    list [0] = tmp;
    return list ;
}
```

16. What will be the output of the following program?

```
int [] x = new int[3];
System.out.println("x[0]_=_ " + x [0]);
```

- Program gets a compile-time error because the number of elements in the array is not defined.
- Program gets a run-time error because there is no initial values for the array elements.
- Program runs in a proper way and displays "x[0] = 0".
- Program gets a run-time error because x[0] is undefined.
- Program runs in a proper way and displays "x[0] = 3".

17. What will be the output of the following program?

```
int sum = 0;
for (int i = 1; i <= 5; i++){
    for (int j = i; j <= 5 - i; j++){
        sum++;
    }
}
System.out.println(sum);
```

- 4
- 6
- 8
- 10
- 16

18. Consider the following while loop

```
int i = 8;
while (i < 100) {
    System.out.println(i);
    i += 10;
}
```

How do you convert this while loop into a for loop?

a)

```
int i;
for (i = 8; i < 100; i = i + 10) {
    System.out.println(i);
}
```

b)

```
int i = 8;
for(i < 100; i = i + 10) {
    System.out.println(i);
}
```

c)

```
for (i < 100) {
    System.out.println(i);
}
```

d)

```
for (int i = 8; i < 100; i = i + 10) {
    System.out.println(i);
    i += 10;
}
```

e)

```
for (int i = 8; i <= 100; i++) {
    System.out.println(i);
    i += 10;
}
```

19. Which of the following functions creates and returns an array of 10 numbers, where each element of the array is initialized with random values such that [0,10)?

a)

```
public static int createArray(){
    return Math.random()*10;
}
```

b)

```
public static double[] createArray(){
    double[] array;
    for (int i = 0; i < 10; i++)
        array[i] = 10;
    return array;
}
```

c)

```
public static int [] createArray(){
    int [] array;
    for (int i = 0; i < 10; i++)
        array[i] = Math.random()*10;
    return array;
}
```

d)

```
public static int [] createArray(){
    int [] array;
    array = new int[10];
    for (int i = 0; i < 10; i++)
        array[i] = Math.random()*10;
    return array;
}
```

e)

```
public static double[] createArray(){
    double[] array;
    array = new double[10];
    for (int i = 0; i < 10; i++)
        array[i] = Math.random()*10;
    return array;
}
```

20. Let say you have the following function defined:

```
public static void printStar (int n){
    System.out.println("*");
    for (int i = 1; i <= n; i++){
        System.out.print("*");
    }
    System.out.println ();
}
```

Which of the following code fragments produce the following output?

```
*
**
*
**
*
**
```

a)

```
for (int i = 0; i <= 2; i++)
    printStar (3);
```

b)

```
for (int i = 0; i <= 6; i++)
    printStar (1);
    printStar (2);
```

c)

```
for (int i = 1; i < 2; i++)
    printStar (1);
for (int i = 1; i < 2; i++)
    printStar (2);
```

d)

```
for (int i = 0; i < 3; i++)
    printStar (2);
```

e)

```
for (int i = 1; i <= 3; i++)
    printStar (3);
```

21. What will be the output of the following program?

```
for (int i = 0; i < 2; i ++){
    System.out.print("*");
    for (int j = 0; j < 2; j++){
        System.out.print("*");
        System.out.println ();
        System.out.print("*");
    }
    System.out.println ();
}
```

a) *****

b) *
**
**
*

**
**

c) **
**
*
**
**

*

d) **
**

*

**

**

*

**

**

*

e) *****

22. Which of the following can be used to get the last element of an array?

- a) arr[arr.length]
- b) arr[arr.length-1]
- c) arr[arr.size]
- d) arr[arr.length()]
- e) arr[arr.size()]

23. Assume that we have method which calculates the sum of the numbers between [1,n] with the following signature: `public static int findSum(int n)`. What will be the output of the following code?

```
int [] a = {3,4,5};
int b = findSum(a[1]);
int c = findSum(a[2]);
System.out.println("b="+b+"_c="+c);
```

- a) b=10 c=15
- b) b=10 c=10
- c) b=15 c=15
- d) b=1 c=2
- e) b=6 c=10

24. Which of the following functions takes a parameter of an array, and returns the average of the elements of that array?

a)

```
public static double averageArray(int[] array){
    average(array);
}
```

b)

```
public static double averageArray(int[] array){
    double average = 0;
    for (int i = 0; i < array.length; i++){
        average += array[i];
    }
}
```

c)

```
public static double averageArray(int[] array){
    double average = 0, sum = 0;
    for (int i = 0; i < array.length; i++){
        sum += array[i];
    }
    average = sum / array.length;
    return average;
}
```

d)

```
public static double averageArray(int[] array){
    double average = 0;
    for (int i = 0; i < array.length; i++){
        array[i] = input.nextInt ();
        average += array[i];
    }
    return average;
}
```

e)

```
public static double averageArray(int[] array){
    double average = 0;
    for (int i = 0; i < array.length; i++){
        average += array[i];
    }
    return average;
}
```

25. Which of the following functions takes a parameter of an array filled with numbers, and returns the largest element of that array?

a)

```
public static int findGreatest(int [] array){
    int max;
    for (int i = 0; i < array.length; i++){
        if (array[i] > max){
            max = array[i];
        }
    }
    return max;
}
```

b)

```
public static void findGreatest(int [] array){
    int max = 0;
    for (int i = 0; i < array.length; i++){
        if (array[i] > max){
            return array[i];
        }
    }
}
```

c)

```
public static void findGreatest(int [] array){
    for (int i = 0; i < array.length; i++){
        if (array[i] > max){
            max = array[i];
        }
    }
    return max;
}
```

d)

```
public static int findGreatest(int [] array){
    int max = array[0];
    for (int i = 0; i < array.length; i++){
        if (array[i] > max){
            array[i] = max;
        }
    }
    return max;
}
```

e)

```
public static int findGreatest(int [] array){
    int max = array[0];
    for (int i = 1; i < array.length; i++){
        if (array[i] > max){
            max = array[i];
        }
    }
    return max;
}
```