

INFORMATICS

Instruction: You are offered the test items with one correct answer from four proposed ones.

1. Physical device that we use to store programs and data for short or long period of time
 - A) cache memory
 - B) personal computer
 - C) video memory
 - D) computer memory
2. Network cable is like a road. Cars represent data that is transmitted through networks. What does number of lines represent
 - A) process
 - B) bandwidth
 - C) latency
 - D) delay
3. You need to convert 40 megabytes to kilobytes (1 kilobyte is 1024 bytes)
 - A) 40 024 kilobytes
 - B) 40 960 kilobytes
 - C) 39 936 kilobytes
 - D) 40 990 kilobytes
4. What is the output of code given below

```
age = 50
if age > 40:
    if age > 60:
        print("Turning old")
    else:
        print("Middle age")
else:
    print("Young age")
```

 - A) Turning old
 - B) Young age
 - C) age>40
 - D) Middle age
5. Name a malware which harm computers, steal information and can spread itself to other computers, sometimes it looks like 'useful' program
 - A) utility
 - B) mobile application
 - C) system applications
 - D) computer virus

6. Number system that uses only two digits: 1 and 0
- A) octal
 - B) binary
 - C) decimal
 - D) hexadecimal
7. You need to care your computer specification when selecting software (select wrong answer)
- A) software can damage your PC
 - B) software may slow your computer
 - C) some software may not work with your PC
 - D) computer hardware may not support selected software
8. Name a process of conversion of an encoded format back into the original characters
- A) decoding
 - B) coding
 - C) negation
 - D) logic
9. Database systems DO NOT do
- A) they store special information used to manage the data
 - B) they manage access rights (who is allowed to see the data, who can change it)
 - C) they store data
 - D) they compile code written by programmer
10. Name a technique in computer graphics for producing a digital representation of any object or surface
- A) 3D modeling
 - B) video
 - C) 2D modeling
 - D) photo
11. Choose the formula to get value given in A4 by using range between A1 and C3

	A	B	C
1	1	3	5
2	2	4	6
3	4	8	12
4	9		

- A) =MIN(A1: C3)
- B) =MAX(A1: C3)
- C) =COUNT (A1: C3)
- D) =SUM(A1:C3)

12. Select the correct Python code where it reads the information from “filename.txt” file and prints it to the screen

```
filename.txt - C:/Users/BS/AppData/Local/Programs/Python/Python310/filename.txt (3.10.2)
File Edit Format Run Options Window Help
Hello!
Welcome to filename.txt file!
Read this information with Python
```

- A) `file_info = open("filename.txt", "r")`
`print(file_info.read())`
 - B) `file_info = open("filee.txt", "r")`
`print(file_info)`
 - C) `file_info = open("file.txt", "r")`
`print(file_info.write())`
 - D) `file_info = read_file("filename.txt", "r")`
`print(file_info.read())`
13. Choose the correct AND gate Outputs:

Input 1	Input 2	Output
0	0	
0	1	
1	0	
1	1	

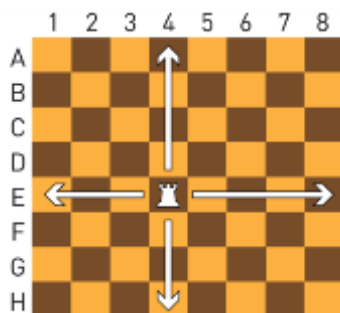
- A) 0, 1, 1, 0
 - B) 1, 1, 0, 0
 - C) 0, 1, 1, 1
 - D) 0, 0, 0, 1
14. MySQL opportunity that supports most of ANSI SQL commands
- A) support
 - B) portability
 - C) functionality
 - D) speed
15. Choose the operator which specifies multiple possible values for a column in a database using MySQL
- A) like
 - B) in
 - C) equal
 - D) between
16. Classical machine learning is often divided into categories
- A) clustering and dimension reduction
 - B) unsupervised and regression
 - C) association and unsupervised
 - D) supervised and unsupervised

17. Name a chart used to visualize a part to whole relationship in percentages. For example, time spent for different activities
- A) Graphical
 - B) Line
 - C) Bar
 - D) Pie
18. Convert the following decimal numbers to binary: 129 and 8
- A) 11000000 and 1100
 - B) 10000001 and 1000
 - C) 10000000 and 1000
 - D) 10000001 and 1001
19. The database has table named “student_info” that has columns: name, surname, age, email and phone_number. Select right SQL code for getting surname of students that starts with ‘A’
- A) `SELECT name FROM student_info WHERE surname = “A%”;`
 - B) `SELECT surname FROM student_info WHERE surname like “A%”;`
 - C) `SELECT surname FROM database WHERE surname “A%”;`
 - D) `SELECT surname FROM student_info WHERE name “A%”;`
20. HTML color values are
- A) RGB, HEX, HSL etc.
 - B) RGB, LIGHT, HSLS etc.
 - C) RGB, RED, HSL etc.
 - D) GRAY, HEX, HSL etc.

Instruction: You are offered the test items on the base of context with one correct answer from four proposed ones. Read the context attentively and do the items.

Zhansaya is a multiple winner of many chess competitions worldwide. Nevertheless, she did not become a chess player immediately. She was also studying hard how to play this game. Zhansaya was not afraid of making mistakes because she knew that practising makes her better. Now we want to know how she was learning to play with a rook. As you know, the rook moves horizontally or vertically on the chessboard. The initial position of the rook (letter, number) is shown on the picture.

The rook has to reach the destination point (letter, number) in one move.



Input: string variable (Letter) and int variable (Number) of initial position.

string variable (Letter) and int variable (Number) of destination position.

Output: 'YES' if the rook can reach the destination, 'NO' otherwise.

	Input	Output
1	A 1 B 2	NO
2	A 1 E 1	YES

```
1 rock = input().split()
2 destination = input().split()
3
4 if rock[0] == destination[0]:
5     print("Yes")
6 else:
7     print("No")
8
9 if rock[1] == destination[1]:
10    print("Yes")
11 else:
12    print("No")
13
```

Student wrote the following code to solve the problem, but he gets some mistakes.

21. Let's assume that student fixed his code. Define the output if the rock has position B2 and destination is C6
- A) YES YES
 - B) NO YES
 - C) YES
 - D) NO
22. Let's assume that student fixed his code. Define the output if the rock has position D5 and destination is F5
- A) YES YES
 - B) NO
 - C) NO NO
 - D) YES
23. The student wants to fix his code to always get correct results. Define the action to which he needs to do
- A) remove "else"
 - B) replace "Yes/No" with "YES/NO"
 - C) remove second "if" statement
 - D) compare all variables in one "if" statement
24. This question is related to students wrong code. Define the values of variables of rock[0] and destination[1] if the rock has position E1 and destination is B7
- A) rock[0] = "E", destination[1] = "B"
 - B) rock[0] = "E", destination[1] = "7"
 - C) rock[0] = "E1", destination[1] = "B7"
 - D) rock[0] = "1", destination[1] = "2"

25. Define the correct code to solve problem above

```
1 rock = input().split()
2 destination = input().split()
3
4 if rock[0] == destination[0] or rock[1] == destination[1]:
5     print("YES")
6 else:
7     print("NO")
```

A)

```
1 rock = input().split()
2 destination = input().split()
3
4 if rock[0] == destination[0]:
5     print("YES")
6 else:
7     print("NO")
8
9 if :
10    print("YES")
11 else:
12    print("NO")
```

B)

```
1 rock = input().split()
2 destination = input().split()
3
4 if rock[0] == destination[0]:
5     print("YES")
6 else:
7     print("NO")
```

C)

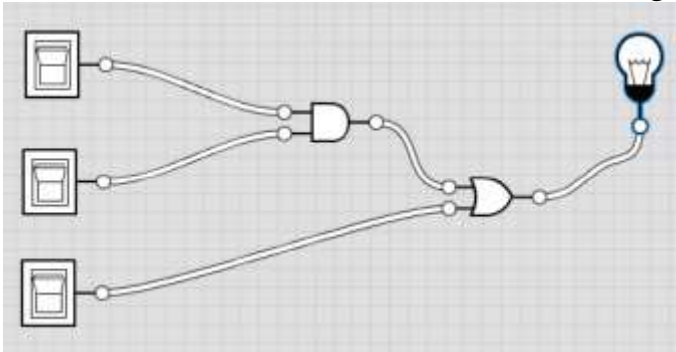
```
1 rock = input().split()
2 destination = input().split()
3
4 if rock[1] == destination[1]:
5     print("YES")
6 else:
7     print("NO")
```

D)

Instruction: You are offered the test items with one or more correct answers.

26. Find the function(-s), where column and the row do not change when copied
- A) \$A\$5
 - B) F2
 - C) \$A5
 - D) B\$4
 - E) \$A\$2
 - F) \$B\$4
27. Convert the binary numbers 00100111 and 10000 to the decimal numbers
- A) 12
 - B) 8
 - C) 18
 - D) 16
 - E) 37
 - F) 39
28. Startups need crowdfunding for
- A) crowdfunding platform helps to test the idea's worth by exposing it to the customers
 - B) crowdfunding helps with building a product
 - C) crowdfunding is a type of pre-sale
 - D) helps for team formation
 - E) startups don't need to spend resources on marketing as much
 - F) crowdfunding give guaranties for product
29. A DHCP server can automatically assign the following IP address configuration information to a host
- A) switches
 - B) client
 - C) optional values
 - D) IP Address
 - E) host
 - F) default gateway
30. Which statement(s) is/are NOT TRUE about electronic and digital signatures
- A) digital signature leverages certificate-based ID to authenticate signer identity
 - B) digital signatures leverage cryptography to provide proof of the integrity
 - C) all electronic signatures are digital
 - D) E-signatures allow users to sign documents online
 - E) E-signatures are very hard to use
 - F) E-signatures allow users to trace their handwritten signature using a finger or a stylus

31. Select situation when bulb does NOT light on



- A) Off, On, Off
- B) Off, On, On
- C) On, Off, On
- D) On, On, Off
- E) Off, Off, Off
- F) On, Off, Off

32. The correct form of adding image to the web page

- A) ``
- B) ``
- C) ``
- D) `<img src= "/images/pic.png"`
- E) ``
- F) ``

33. Choose the given below program's outputs (separately)

```
1) var result = 0;
for (var i = 0; i < 5; i++) {
    result += i;
}
console.log(result);
```

```
2) var a = 10;
do {
    a += 1;
    console.log(a);
} while (a < 5);
```

- A) 5
- B) 10
- C) 11
- D) 7
- E) 8
- F) 15

34. Given the expression **(A OR B) XOR (A AND C)** . Select cases when expression get 0 (False).

A) A = 0, B = 0, C = 1

B) A = 1, B = 0, C = 0

C) A = 1, B = 1, C = 0

D) A = 1, B = 1, C = 1

E) A = 0, B = 1, C = 0

F) A = 1, B = 0, C = 1

35. It is required to select employees whose Commission_pct column has some value.

Select the condition that matches the task

A) WHERE Commission_pct ISN'T NULL

B) WHERE Commission_pct <> NULL

C) WHERE YES (Commission_pct IS NULL)

D) WHERE Commission_pct IS NULL

E) WHERE Commission_pct NOT IS NULL

F) Commission_pct <> NULL