

## INFORMATICS

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

1. Storage device that is an alternative to a hard disk drive and faster than hard disks because there is no read/write head to move
  - A) ROM
  - B) Solid State Drive
  - C) cache
  - D) video memory
  - E) RAM
2. Download speed of the internet is 100 Mbps (megabits per second). How much time will it take to download a file with 1,5 GB size? (use 1000 instead of 1024, ex.: 1 GB = 1000 MB)
  - A) 4 minutes
  - B) 2 minutes
  - C) 12 minutes
  - D) 8 minutes
  - E) 10 minutes
3. You need to convert 512 gigabytes to megabytes (1 kilobyte is 1024 bytes)
  - A) 524 224 megabytes
  - B) 512 000 megabytes
  - C) 51200 megabytes
  - D) 524 288 megabytes
  - E) 512 928 megabytes
4. Choose the logical condition which means “A is greater than or equal to B” in Python
  - A)  $A \leq B$
  - B)  $A < B$
  - C)  $A \geq B$
  - D)  $A > B$
  - E)  $A \neq B$
5. Name the crimes that committed by computers or network
  - A) online crime
  - B) network crime
  - C) internet crime
  - D) hacker crime
  - E) cybercrime

6. This number system has 10 digits that we can use: 0, 1, 2, 3, 4, 5, 6, 7, 8 and 9
- A) encoding
  - B) ASCII code
  - C) boolean logic
  - D) binary number
  - E) decimal number
7. Name an advantage of Google Drive where you can confidently share your files, so others can access them
- A) drag and drop
  - B) collaboration
  - C) free storage
  - D) cost
  - E) uploading directly
8. According to the expressions below answer True or False
1. ASCII uses an 8-bit encoding while Unicode uses a variable bit encoding.
  2. Unicode represents most written languages in the world while ASCII does not.
  3. ASCII has its equivalent within Unicode.
- A) 1. True 2. False 3. True
  - B) 1. True 2. True 3. True
  - C) 1. False 2. True 3. False
  - D) 1. True 2. False 3. False
  - E) 1. False 2. True 3. True
9. Name a software system used to maintain relational databases
- A) DNS
  - B) RDBMS
  - C) big data
  - D) SQL
  - E) IP address
10. Select a professional, free and open-source 3D computer graphics software toolset used for creating animated films, visual effects, art, 3D printed models, interactive 3D applications and video games
- A) Corel Draw
  - B) Blender
  - C) Adobe Photoshop
  - D) Scetch
  - E) MS Paint

11. The value of the cell B6 if the formula from cell A6 copied to cell B6

fx		=A1+A2+A3+A4+A5		
	A	B	C	
1	3	1		
2	4	8		
3	5	9		
4	6	17		
5	7	15		
6	25			
7				

- A) 50
- B) 100
- C) 25
- D) 75
- E) 125

12. The following code has errors. Find the correct forms of them

```
print("Enter your age: ")
age = int(input())
if age >= 12:
print("Pass")
else:
Hey! Kid
```

A)

```
print("Pass")
print("Hey! Kid")
```

B)

```
print("Pass")
print("Hey! Kid")
```

C)

```
print("Pass")
print("Hey! Kid")
```

D)

```
if age > =13
```

E)

```
print("Pass")
print("Hey! Kid")
```

13. Find the logical operators where the outputs are true when both inputs are true

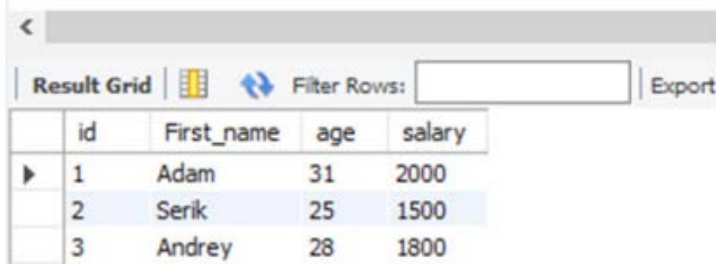
- A) AND, OR
- B) AND, NOT
- C) OR, NOT
- D) AND, XOR
- E) OR, XOR

14. The database has table named "student\_info" that has columns: name, surname, age, email and phone\_number. You should select "surname" and "phone\_number" columns from "student\_info" table. Choose the correct SQL code
- A) SELECT surname phone\_number;  
 B) SELECT surname and phone\_number FROM student\_info;  
 C) SELECT \* FROM student\_info;  
 D) SELECT columns:surname, phone\_number FROM table: student\_info;  
 E) SELECT surname, phone\_number FROM student\_info;
15. Choose the operator which searches for a pattern in a database using MySQL
- A) in  
 B) not equal  
 C) like  
 D) equal  
 E) between
16. Reinforcement learning, "Throw a robot into a maze and let it find an exit". Nowadays used for
- A) to forecast sales and discounts, etc.  
 B) to merge close points on a map  
 C) to analyze and label new data  
 D) games, automating trading, self-driving cars, etc.  
 E) topic modeling and similar document search, etc.
17. Select the correct formulas to find total result in cell E2 and percentage in cell F2 (max. score is 300)

	A	B	C	D	E	F
1	Name	A	B	C	Total	Percentage
2	Yermek	100	100	76	276	92
3	Adilet	100	94	80		
4	Assel	75	100	80		
5	Yulya	69	100	100		

- A) E2: =sum(B2:D2) F2: =E2\*100/300  
 B) E2: =sum(B2:D2) F2: =E2\*300/100  
 C) E2: =sum(A2:D2) F2: =F2\*100/300  
 D) E2: =average(B2:D2) F2: =E2\*300/100  
 E) E2: =count(B2:D2) F2: =percentage(E2)
18. Convert the following decimal number to binary  $247_{(10)} = \text{---}_{(2)}$
- A) 11101101  
 B) 11110111  
 C) 11111011  
 D) 10110111  
 E) 11011011

19. There are two tables 'employees' and 'table\_two'. Choose correct second line of code to copy First\_name, age, salary from table\_two and paste it to employee table



	id	First_name	age	salary
▶	1	Adam	31	2000
	2	Serik	25	1500
	3	Andrey	28	1800

- A) SELECT First\_name,age,salary  
B) INSERT INTO employes (Adam,Serik,Andrey)  
C) INSERT INTO (ID,age,salary)  
D) INSERT INTO (ID,filter,salary)  
E) SELECT (ID,age,salary)
20. Choose the correct CSS script to add image to the background
- A) body{  
background-image: ("paper.jpg")  
}
- B) body{  
background-image: url("paper.jpg")  
}
- C) body{  
background-image: url(paper.jpg)  
}
- D) body{  
background: url(paper.jpg)  
}
- E) body{  
background-image: url("paper")  
}

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

Computers store all data in bits. Bits are stored in binary numbers (as 0 and 1). They can be converted into decimal numbers through summing up powers of two.

For example,  $1 * 2^0 + 1 * 2^1 + 1 * 2^2 + 1 * 2^3 + \dots + 1 * 2^n$ .

Under the number N print all integer powers of two, does not exceed N, in ascending order.

Input: an integer (N)

Output: print all 'power of two' integers that do not exceed the given number (N) in ascending order.

	Input	Output
1	60	1 2 4 8 16 32
2	100	1 2 4 8 16 32 64

```
1 n = int(input())
2 i = 0
3 while i < n:
4     print(2 ** i)
5     i += 1
6 print('Done')
7
```

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

21. Let's assume that student fixed his code. Then calculate output for N = 5
- A) 1 2
  - B) 1 2 4 8
  - C) 1 2 4 8 16
  - D) 1 2 4
  - E) 1 2 4 8 16 32
22. Let's assume that student fixed his code. Then define the possible value of N, if the output is 1 2 4 8 16 32 64
- A) 13
  - B) 94
  - C) 42
  - D) 131
  - E) 57

23. That student started to fix his own code. Define the correct form of code in line 4  
“print(2 \*\* i)” to get all output numbers in one line
- A) print(2 \*\* i, line = “ ”)
  - B) print(2 \*\* i, end)
  - C) print(2 \*\* i, “ ”)
  - D) print(2 \*\* i, newline = “ ”)
  - E) print(2 \*\* i, end = “ ”)
24. This question is related to students wrong code. Define the output if n=3
- A) 1 2 Done
  - B) Done
  - C) 1  
2  
Done
  - D) 1  
2  
4  
Done
  - E) 1  
Done
25. That student continued to fix his own code. Define the wrong line(s) and correct code(s)
- A) line 1: n = input()
  - B) line 6: remove print
  - C) line 3: while 2 \*\* i < n and line 6: remove print
  - D) line 2: i = 1
  - E) line 3: while 2 \*\* i < n

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

26. Select chart types in google sheets
- A) pie chart
  - B) dot chart
  - C) bar chart
  - D) tree chart
  - E) line chart
  - F) slow chart
  - G) flow chart
  - H) tea chart
27. Convert the decimal numbers to the binary numbers: 101 and 100
- A) 1011110
  - B) 111100
  - C) 100110
  - D) 1100101
  - E) 110111
  - F) 1100100
  - G) 1011101
  - H) 1010110
28. Select main startup lifecycles
- A) formation
  - B) market
  - C) team building
  - D) growth
  - E) checking
  - F) idea
  - G) validation
  - H) foundings
29. To configure a static IP address on a host, go to the TCP/IPv4 Properties window of the NIC. You can assign the following IP address configuration information to a host
- A) IP Addresses
  - B) default gateway
  - C) telephone
  - D) client
  - E) switches
  - F) optional values
  - G) host
  - H) home address



30. Choose the most common mistakes users make that could open doors to hackers
- A) careless administrators
  - B) availability
  - C) code server setup
  - D) optional values
  - E) government services
  - F) sloppy server setup
  - G) climate change
  - H) insecure and publicly kept passwords

31. Complete the following truth tables:

<b>A</b>	<b>B</b>	<b>(A or B) and (A or B)</b>
<b>0</b>	<b>0</b>	<b>0</b>
<b>1</b>	<b>0</b>	<b>D</b>
<b>0</b>	<b>1</b>	<b>E</b>
<b>1</b>	<b>1</b>	<b>F</b>

- A) C=1
  - B) C=0
  - C) E=1
  - D) D=1
  - E) F=0
  - F) F=1
  - G) E=0
  - H) D=0
32. Correct way to add background color in HTML
- A) `<body style = "background-color=green">`
  - B) Same as color name "background-image" p but with the properties with RGB, HSL and HEX values.
  - C) `<body bg-color = "green">`
  - D) `<body style = "background-color: green;">`
  - E) `<body style = "background-color= gray">`
  - F) You can set the "background-image" color of text
  - G) `<body style = "background-color: gray;">`
  - H) `<body color = "green">`

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

```
1)if (5 > 10) {
  console.log("Not so sure about this");
} else {
  console.log("walking");
}
```

```
2)if (1 > 2) {
  console.log("Not so sure about this");
} else {
  console.log("lets go");
}
```

- A) 5<10
- B) "walking"
- C) "lets go"
- D) "Not so sure about this" "walking"
- E) "Walking lets go"
- F) "Not so sure about this"
- G) error
- H) 1<2

34. Choose the correct expression(s) which will give outputs that are given in the table below

X	Y	Z	Output
0	1	0	0
1	1	0	1
1	0	1	0

- A) X or Y or not Z
- B)  $X \wedge Y \wedge \neg Z$
- C)  $\neg X \vee Y \vee \neg Z$
- D) X or Y and not Z
- E)  $\neg X \vee Y \vee Z$
- F) X and Y and not Z
- G) X or Y and Z
- H)  $X \vee Y \vee \neg Z$

35. SQL query: `SELECT COUNT(title) FROM books WHERE genre = 'Horror'`;  
Choose the correct description of the request result

- A) books in the "Horror" genre ,excluding empty values
- B) the number of books of the genre "Horror"
- C) unique titles of books in the "Horror" genre, excluding empty values
- D) unique titles of books in the "Horror" genre, taking into account empty values
- E) books in the "Horror" genre
- F) unique titles of books in the "Horror" genre
- G) horror book titles
- H) the number of titles of books of the genre "Horror"