Select the letter of the most appropriate answer and completely shade in the corresponding region on the anser sheet. If no answer seems appropriate then completely shade in region E on the answer sheet. Python 3.10.0 was used to generate code in the questions.

- 1) The instruction set for a microprocessor is unique and is typically understood only by the microprocessors of the same brand.
  - A) True
  - B) False

2) The CPU understands instructions written in a binary machine language.

- A) True
- B) False
- 3) A bit that is turned off is represented by the value -1.
  - A) True
  - B) False
- 4) The main reason to use secondary storage is to hold data for long periods of time, even when the power supply to the computer is turned off.
  - A) True
  - B) False

5) RAM is a volatile memory used for temporary storage while a program is running.

- A) True
- B) False
- 6) Programs are commonly referred to as

) Programs are commonly referred to as	
A) software	B) utility programs
C) application software	D) system software

7) Where does a computer store a program and the data that the program is working with while the program is running?

<ul> <li>A) in secondary storage</li> </ul>	B) in main memory
C) in the CPU	D) in the microprocessor

8) What type of volatile memory is usually used only for temporary storage while running a program?				
A) ROM	B) TMM	C) TVM	D) RAM	

9) Which language is referred to as a low-level language?	
A) Python	B) C++
C) Java	D) Assembly language

10) The disk drive is a secondary storage device that stores data by \_\_\_\_\_\_ encoding it onto a spinning circular disk.
A) electrically
B) digitally
C) magnetically
D) optically

11) A	has no mov	ing parts and operates faster that	in a traditional disk drive.	
A) hyper	r drive	B) DVD drive	C) jumper drive	D) solid state drive

12) What is the largest value that A) 8	can be stored in one byte? B) 65535	C) 255	D) 128	
13) What is the decimal value of the following binary number? 10011101				
A) 28	B) 157	C) 156	D) 8	
<ul> <li>14) According to the behavior of float.</li> <li>A) True</li> <li>B) False</li> </ul>	integer division, when an inte	eger is divided by an integer,	the result will be a	
15) A flowchart is a tool used by A) True B) False	programmers to design prog	rams.		
16) Since a named constant is jus A) True B) False	t a variable, it can change any	time during a program's exe	cution.	
17) What is the informal languag and is not meant to be compi	led or executed?		-	
A) pseudocode	B) source code	C) flowchart	D) algorithm	
18) A(n) is a diagram th A) flowchart	nat graphically depicts the ste B) pseudocode	ps that take place in a progra C) algorithm	m? D) source code	
19) Which mathematical operato A) &	r is used to raise 5 to the secon B) **	nd power in Python? C) /	D) ~	
20) After the execution of the fol data type. sold = 256.752	lowing statement, the variable	e sold will reference the num	neric literal value as (n)	
A) float	B) currency	C) str	D) int	
21) After the execution of the following statement, the variable price will reference the value price = int(68.549)				
A) 69	B) 68.6	C) 68	D) 68.55	
22) What is the output of the foll print(value1 * value2		value1 = 2.0 and value2	= 12?	
A) 24 C) value1 * value2	,	B) 2.0 * 12 D) 24.0		

23) The **if** statement causes one or more statements to execute only when a Boolean expression is true. A) True B) False

24) Expressions that are tested by the if statement are called Boolean expressions.

. A) True

B) False

2E) M/hon using the	ical operator and or both of th	a aubayaraasiana muut ha tru	is for the compound
25) When using the log expression to be true.	ical operator, one or both of th	le subexpressions must be tru	le for the compound
A) maybe	B) not	C) or	D) and
<pre>26) Which of the following is the A) if y &gt;= 10 and y C) if 10 &gt; y and y &lt;</pre>	<= 50:	e whether y is in the range 10 B) if y >= 10 or y <= D) if 10 < y or y > 5	= 50:
27) What is the result of the follo $x < y$ or $z > x$	wing Boolean expression, give	n that $\mathbf{x} = 5$ , $\mathbf{y} = 3$ , and $\mathbf{z}$	= 8?
A) False	B) 5	C) 8	D) True
28) What is the result of the follo x < y and z > x	wing Boolean expression, give	n that $\mathbf{x} = 5$ , $\mathbf{y} = 3$ , and $\mathbf{z}$	= 8?
A) 8	B) 5	C) False	D) True
29) What does the following exp x <= y	ression mean?		
A) $\mathbf{x}$ is less than or C) $\mathbf{x}$ is greater than		B) x is less than y D) x is greater than	or equal to y
30) When using the log true.	ical operator, both subexpress	ions must be true for the com	npound expression to be
A) not	B) either <b>or</b> or <b>and</b>	C) or	D) and
<ul><li>31) Reducing duplication of code</li><li>A) True</li><li>B) False</li></ul>	e is one of the advantages of us	ing a loop structure.	
<ul><li>32) A good way to repeatedly pe statements in a loop that will</li><li>A) True</li><li>B) False</li></ul>	rform an operation is to write repeat as many times as neces		nce and then place the
33) What are the values that the variable num contains through the iterations of the following for loop? for num in range(4):			
	B)1,2,3,4	C)1,2,3	D)0,1,2,3
34) What are the values that the variable num contains through the iterations of the following for loop? for num in range(2, 9, 2):			
A)1,3,5,7,9 C)2,3,4,5,6,7,	8, 9	B) 2, 4, 6, 8 D) 2, 5, 8	
35) is the process of ins		ut into a program in order to	ensure that the data is
valid before it is used in a cor	-		
<ul> <li>A) Correcting data</li> </ul>	B) Input validation	C) Data validation	D) Correcting input

36) When will the following loop terminate?

while keep\_on\_going != 999:

A) when **keep\_on\_going** refers to a value greater than **999** 

- B) when **keep\_on\_going** refers to a value less than **999**
- C) when **keep\_on\_going** refers to a value equal to **999**

D) when **keep\_on\_going** refers to a value not equal to **999** 

37) Which of the following represents an example to calculate the sum of numbers (that is, an accumulator), given that the number is stored in the variable number and the total is stored in the variable total?

A) total = numbe	r	B) total + number	= total
C) number += num	ber	D) total += numbe	r
<pre>38) What will be displayed total = 0 for count in range total += count print(total)</pre>	e(1,4):	executed?	
A) 5	B) 1 4	С) б	D) 1 3 6
<pre>39) What will be displayed for num in range(     num += num</pre>	0	executed?	
print(num)			
A) 5 10 15	B) 30	C) 0 5 10 15 20	D) 25
40) What does the following student = 1	g program do?		
while student <=	3:		
total = 0 for score in :	range(1, 4)		
	nt(input("Enter tes	t score: "))	
average = tot	al/3		
print("Studen student += 1	t ", student, "avera	age: ", average)	

A) It accepts 3 test scores for each of 3 students and outputs the average for each student.

B) It accepts one test score for each of 3 students and outputs the average of the 3 scores.

C) It accepts 4 test scores for 3 students and outputs the average of the 12 scores.

D) It accepts 4 test scores for 2 students, then averages and outputs all the scores.

## Answer Key Testname: MATH RELAY 2023 PROGRAMMING

1) A 2) A 3) B 4) A 5) A 6) A ́7) В 8) D 9) D 10) C 11) D 12) C 13) C 14) B 15) A 16) B 17) A 18) A 19) B 20) A 21) C 22) D 23) A 24) A 25) C 26) A 27) D 28) C 29) A 30) D 31) A 32) A 33) D 34) B 35) B 36) C 37) D 38) C 39) B

40) A