



Test №2

Graded Quiz • 38 min

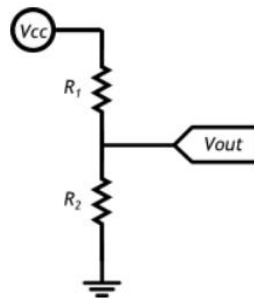
Due Apr 20, 12:29 PM IST

Test №2

TOTAL POINTS 19

1. Calculate voltage between Vout and the "ground", if $V_{cc} = 5V$, $R_1 = 1 \text{ kilohm}$, $R_2 = 220 \text{ ohm}$. Round the result up to an integer.

1 point



1

2. Choose the right statement concerning a potentiometer.

1 point

- ☒ A potentiometer consists of ten or more resistors, between which we can switch by rotating the knob
- ☐ A potentiometer can be viewed as two resistors with variable resistance and it can be used to regulate voltage
- ☐ A potentiometer is used to transform potential energy into kinetic energy
- ☐ A potentiometer is used to transform lower voltage into higher voltage

3. Why can we use the same program to display the data read off from various analog sensors? Tick all the correct statements.

1 point

- ☐ We can't use the same program to display data from different sensors
- ☒ The signal read at the input is turned into a number
- ☒ Storing a value in the memory and its output have nothing to do with the type of the sensor which is connected to the input, which gives us this number after it's been read
- ☐ Arduino is an intelligent controller which can by itself determine the type of the sensor connected to it
- ☒ The signal of an analog sensor is represented by a varying voltage level at the input, regardless of the phenomenon examined by the sensor

4. Which statements are true concerning the `analogRead()` function?

1 point

- ☒ It returns the number in the 0-1023 range, which is proportional to the 0-5 V voltage at the input
- ☒ It takes only one parameter, which is the number of the analog input
- ☐ It takes two parameters: the number of the analog output and the value in the 0-1023 range proportional to the 0-5 V voltage, which will be created at the chosen output
- ☐ It does not return any value

5. Which statements are true concerning `Serial` and its operation ?

1 point

- ☒ `Serial` is designed to exchange data between digital pins 0 and 1
- ☒ `Serial` uses a USB port to exchange data
- ☒ The `print()` method can be used for data transmission
- ☒ The `available()` method can be used to check whether there is data in the buffer
- ☒ Before the beginning of data exchange, we should use the `begin()` method and determine the data exchange speed

- ☒ The read() method can be used to receive data
- ☒ Serial is an object built in the development environment
- ☒ The println() method can be used to transmit data

6. What's characteristic of using the millis() function?

1 point

- ☒ It does not take any parameters
- ☐ It is used to receive current time after the synchronization of the timer with the computer
- ☐ It takes only one parameter - the units in which the time needs to be returned
- ☒ It returns the number of milliseconds which have passed after the controller has been turned on
- ☐ It returns the number of milliseconds which have passed after this function was called last
- ☐ It returns the number of seconds which have passed after the controller has been started

7. What's true about the digitalWrite() function?

1 point

- ☒ It takes only one parameter – the number of the port from which we need to read off the value
- ☐ It returns the value in the 0-255 range
- ☐ It does not take any parameters
- ☒ It returns HIGH or LOW values depending on the signal level at the input
- ☒ The value that it returns can be regarded as a boolean and it can be used in boolean expressions

8. What is INPUT_PULLUP used for when we configure the port?

1 point

- ☐ To configure the port as an analog input
- ☐ To configure the port as an output
- ☐ To configure the port as a universal one: both input and output
- ☐ To turn on the built-in ground pull-up resistor at the input
- ☒ To turn on the built-in power pull-up resistor at the input

9. What's true concerning boolean expressions and values?

1 point

- ☒ Comparisons give us in the end a boolean value
- ☒ A boolean value can be recorded in the digital output
- ☐ The value read off from the analog input can be considered boolean
- ☒ The result of the calculation of a boolean expression is a boolean value
- ☒ The `digitalWrite(7,(a&&b) || !c)` instruction is correct (when we have boolean variables a,b and c)
- ☒ A boolean value is either true or false

10. Which statements are true for the conditional If-operator?

1 point

- ☐ We can't use another "if" inside "else"
- ☒ It helps us set a condition which will determine whether certain actions should or should not be performed
- ☒ A boolean expression can represent a condition
- ☒ "else" helps to determine the actions, which are performed when the condition is false e
- ☐ We can't use another "if" inside one "if"

11. Which data type is reserved for working with boolean values?

1 point

- ☒ Boolean
- ☐ Int
- ☐ Char
- ☐ Long

12. What exactly is the "!" operator?

1 point

- ☐ Comparisons operator
- ☐ Logical "and"
- ☐ Assignment operator
- ☐ Logical "or"
- ☒ Logical "not"

13. Which of the given operators are comparisons operators?

1 point

- ☐ &&

☐ ||

☒ <

☒ ≥

☐ =

☐ !

☒ >

☒ ==

☒ ≤

14. Calculate the expression `(a&&!b) || !(a&&b)`, if "a" and "b" are false

1 point

☒ true

☐ false

15. What's true concerning the `tone()` function?

1 point

- ☒ It does not return any value
- ☒ It can take two parameters: the number of the pin where we need to generate a signal and the frequency which needs to be generated
- ☒ It can take three parameters: the number of the pin where we need to generate a signal, the frequency which needs to be generated, and signal duration
- ☐ It is reserved to generate a signal sent through the piezo buzzer

16. Which of the following instructions will increase the "z" variable by 1?

1 point

- ☒ z++
- ☐ z==1
- ☒ z=z+1
- ☒ z+=1
- ☐ z*=1

17. Tick the correct statements concerning the map() function

1 point

- ☐ It will drop all values which are beyond the input range
- ☐ It can return a fractional number
- ☒ It takes five parameters: base value, the beginning and the end of the diapason, which stores the base value (input range), the beginning and the end of the diapason with the result (output range)
- ☒ It returns the number which has been proportionally calculated from the input to the output range

18. What do we need an output shift register for?

1 point

- ☐ To shift port numbers by 3
- ☐ To sequentially send 8 signals through 1 pin
- ☒ To simultaneously send 8 digital signals after they have been sequentially received. It also allows to cut down the number of ports in use, as it's controlled by 3 pins

19. Let's assume that the "a" variable has the value of 11, while the "b" variable has the value of 13. In which case will the LED built in the 13th pin turn on?

1 point

- ☒ `if(a > 12) {digitalWrite(7, LOW);} if(b > 12) {digitalWrite(13, HIGH);}`

☒ if(a > 12) {digitalWrite(7, LOW);} else {digitalWrite(13, HIGH);}

☒ if (a > 12) {digitalWrite(7, LOW);} else if(b > 12) {digitalWrite(13, HIGH);}
