Test №1

TOTAL POINTS 20

1. What do you do when working with a solderless breadboard circuit? 1 point

- [x] Connect two or more components by inserting the headers in the transversely lined holes (any of the 5 entries)
- [x] Avoid inserting the two poles of a component in entries located in the same row
- [ ] Connect components strictly observing the colour of the connecting wires
- [ ] Connect two or more components by inserting the headers in the transversely lined holes (any of the 10 entries)
- [ ] Connect the power supply to "-" and "+" rails at all times

2. Why did we use resistors connected in series with LEDs in our traffic light model? 1 point

- ( ) To neutralize the noise at the switch lead
- ( ) To increase the intensity of the current running through LEDs
- ( ) To increase the brightness of LEDs

- [x] To decrease the intensity of the current running through LEDs

3. What is the correct polarity of LED connection? 1 point

- [x] The long header (anode) is connected to the "+", while the short header (cathode)is connected to the "-" of the power supply
- [ ] The long header (cathode) is connected to the "+", while the short header (anode)is connected to the "-" of the power supply
- [ ] The long header (anode) is connected to the "-", while the short header (cathode)is connected to the "+" of the power supply

4. How can a short circuit be characterized? 1 point

- [ ] Conductors can heat up and the adjacent parts of the structure can ignite
- [x] If the poles of the power supply unit are connected directly in an off-load mode, the electric circuit power is high
- [ ] High brightness of the LED
- [x] The LED is connected without a resistor
- [ ] The LEDs' light is blinking and unstable

5. How do we measure current intensity with a multimeter? 1 point

- [x] By inserting the probe in the multimeter's socket corresponding to a right current
- [ ] By setting the multimeter to the loop-checking mode
- [x] By setting a measuring range (the estimated upper limit)
- [x] By establishing a series connection to the circuit with the probes
- [ ] By removing the battery from the multimeter

6. Which of these words do we use as synonyms? 1 point

- [x] Outputs
- [x] Contacts
- [x] Pins

7. What must we ensure before downloading the program to the controller? 1 point

- [x] That the right port for the connection of the board has been selected

- [x] That the board type has been selected
- [x] That the board is actually connected to the computer
- [ ] That macrodefinitions are created in the code

8. What is the syntax of the comments used in the code? 1 point

- [x] Delimited comments are placed inside /* and */
- [ ] Single-line comments are placed in quotes
- [ ] Delimited comments are placed inside { and }
- [x] Single-line comments are preceded with //
- [ ] Delimited comments are placed inside (and)
- [ ] Single-line comments are preceded with a '

9. What is true concerning setup() and loop()? 1 point

- [ ] loop() is run as many times as it is mentioned in the brackets

- [ ] setup() is run repeatedly before special instructions are issued
- [x] loop() is run in an endless cycle after the running of setup()
- [x] setup() and loop() are function definitions
- [x] setup() and loop() must always be present in the code
- [x] setup() is run once after you start the computer

10. What elements of syntax should always be taken into account? 1 point

- [x] ";" at the end of the instructions
- [x] Curly brackets indicating where the code related to a specific function or control structure starts and ends
- [x] Round brackets after the name of the function (regardless of the presence of communicated parameters)
- [x] The comma which separates the parameters communicated to the function

11. What's true concerning the pinMode() function? 1 point

- [x] It accepts port work direction as a parameter (input or output)
- [x] This function is required to configure port work direction
- [x] It accepts the configured pin number as a parameter
- [ ] You don't need to communicate parameters to this function

12. What needs to be remembered when you create a variable? 1 point

- [x] You need to communicate a certain type to it
- [x] You need to choose a name for it
- [x] You can communicate a value to it
- [x] The name consists of Latin characters (and starts with one), numbers and the"_" symbol
- [x] The name should be unique and meaningful
- [x] It's an instruction, so it should end with a ";"
- [ ] The variable's value cannot be changed

13. How does "=" work? 1 point

- ○ This is an assignment operator, it equalizes both operands with the larger one
- ○ This is a comparisons operator
- ◉ This is an assignment operator, it communicates the value on its right to the variable on its left

14. What is **int**? 1 point

- ○ This is a command used to create a variable which can store values from 0 to 100
- ○ This is a key word used to reset the variable to 0
- ○ This is a command used to create a variable
- ◉ This is a key word used to determine data type as an integer

15. What's the difference between creating a macrodefinition with the help of #define and a variable? 1 point

- ☑ Macrodefinitions do not occupy any data memory
- ☑ The variable's value can be changed
- ☐ Macrodefinitions, unlike variables, can be changed while the program is run

- [ ] Macrodefinitions cannot be created simultaneously with variables

16. What's true concerning the "for" control structure? 1 point

- [x] A counter variable is created when the function is defined
- [x] Commands which should be run repeatedly are placed inside { and }
- [x] This structure is used to create for-loops
- [x] The counter can be used inside the loop cycle (for instance, to calculate sth)
- [x] When the function is defined, a condition is created which will define whether or not the cycle should be continued
- [x] When the function is defined, a rule is created which will determine how the counter will change at each iteration

17. Why can sometimes LEDs fail to turn on? 1 point

- [x] The LED was connected without a resistor and blew out
- [x] The LED is connected to the digital output of the board but is not connected to the "ground"

- [x] The faulty polarity of the connection (cathode and anode have been misplaced)
- [x] The program does not contain an instruction which turns on the power on a corresponding pin
- [x] The corresponding port has not been configured as an OUTPUT

18. What's true concerning the digitalWrite() function? 1 point

- [x] It accepts as a parameter the voltage level (high or low) which needs to be set on a contact
- [ ] Any voltage from 0 to 5 V can be indicated
- [x] The voltage level can be set through HIGH (voltage supply, 5V for Arduino Uno) and LOW (0V) invariables
- [x] It accepts as a parameter the number of the pin which needs to be controlled
- [x] This function allows to turn the voltage on and off on a certain pin
- [ ] You don't need to communicate parameters to this function

19. What is true concerning #define? 1 point

- [ ] This directive is used to create a variable and assign a value to it

- [x] This directive is used to substitute one line with another one
- [ ] Correct usage is: #define STRING1 STRING2 STRING3
- [x] This directive is run before the code is compiled
- [x] Correct usage is: #define STRING1 STRING2

20. What will happen if you run the following code? 1 point

```
void setup() {
  pinMode(2, OUTPUT);
  pinMode(3, OUTPUT);

  digitalWrite(2, LOW);
  digitalWrite(3, LOW);

}

void loop() {
  digitalWrite(2, HIGH);
  digitalWrite(3, HIGH);
}
```

- ○ Voltage on pins 2 and 3 will turn on and off
- ◉ Voltage will turn on on pin 2 first, and then on pin 3
- ○ Voltage will turn on on pin 2, then it will turn on and off on pin 3, and during the next loop() iteration, voltage will turn off on pin 3 and turn on again on pin 2
- ○ Voltage will turn on on pin 2 first, and then it will turn off and on again on pin 3