

Q1: What is the expected output on virtual terminal of the following code:

```
Serial.print(12,BIN);Serial.print(12,HEX);Serial.print(12,DEC);
```

- A. 1100 C 12  
B. 1100C12  
C. 12C1100  
D. 121212

Following program contains incorrect code. It should toggle a LED whenever a push button connected to the pull up pin is pressed.

Q2: For line 4 the correct code is:

- A. `digitalRead (7, LOW);`  
 B. `digitalWrite (7, HIGH);`  
 C. `digitalWrite (13, LOW);`  
 D. `digitalWrite (13, HIGH);`

```

1 void setup() {
2     pinMode (13, OUTPUT);
3     pinMode(7, INPUT);
4     digitalWrite (7, LOW);
5 }
6 int oldValue = HIGH;
7 int state = LOW ;
8 void loop() {
9     int value = digitalRead (7);
10    if(value!=HIGH && oldValue==LOW) {
11        state = (state==LOW) ? LOW : HIGH;
12    }
13    digitalWrite (13, state);
14    value = oldValue;
15 }

```

Q3: For line 10 the correct code is:

- A. if(value!=LOW && oldValue!=HIGH) {  
B. if(value!=HIGH AND oldValue==LOW) {  
C. if(value==LOW && oldValue==HIGH) {  
D. if(value==LOW && oldValue==HIGH && state==LOW) { ✓

Q4: For line 11 the correct code is:

- A. state = (state==HIGH) ? LOW : HIGH;  
B. state = (state==LOW) : LOW ? HIGH;  
C. state = (state==LOW && oldState==LOW) ? LOW : HIGH;  
D. state = (oldState==HIGH AND state==LOW) ? LOW : HIGH;

Q5: The scope of variable oldValue is:

- A. global  
B. local  
C. static  
D. public

**Q6:** There is also additional mistake in line:

- A. 2  
B. 6  
C. 9  
D. 14

Following program contains incorrect code. It should toggle a LED every 500 ms.

Q7: For line 10 the correct code is:

- A. MsTimer2::flash();  
B. flash();  
C. MsTimer2::start(flash  
D. Move to line 13

Q8: For line 3 the correct code is:

- A. boolean output = 0;  
B. static boolean output = HIGH;  
C. global boolean output = HIGH;  
D. boolean output = LOW;

**Q9: For line 5 the correct code is:**

- A. No change is required.  
B. `output = (output)?LOW:HIGH;`  
C. `output = not(output);`  
D. `output = LOW;`

Q10: Arduino allows timers for that reason it is called:

- A. Real-Time system
- B. Time-Based system
- C. Interrupt enabled system
- D. Clock-Based system

Following program reads analog value and displays the 10 Bits binary value using 10 LEDs.

Q11: For line 8 the correct code is:

- A. for (int i=2;i<12; i) {  
B. for (int i=2;i<=11; i++) {  
C. for (int i=0;i<10; i++) {  
D. for (int i=2;i<10; i++) {

```

1 #include <MsTimer2.h>
2
3 void flash() {
4     boolean output = HIGH;
5     digitalWrite(13, output);
6     output = (output)?HIGH:LOW;
7 }
8
9 void setup() {
10     pinMode(13, OUTPUT);
11     MsTimer2::set(500);
12     MsTimer2::start();
13 }
14
15 void loop() {
16
17 }

```

```

1 void setup() {
2     for (int i=2; i<12; i++)
3         pinMode (i, OUTPUT);
4     analogReference (EXTERNAL);
5 }
6 void loop() {
7     int value = digitalRead (0);
8     for(int i=0; i<10; i) {
9         digitalWrite (i, value&0x1);
10    }
11 }
12

```

Q12: For line 7 the correct code is:

- A. `int value = analogRead (1);`
- B. `value = analogRead (0);`
- C. `byte value = analogRead (0);`
- D. `int value = digitalRead (1 to 10);`

Q13: The missing code at line 10 is:

- A. `value <= 1;`
- B. `value /= 2;`
- C. `value -= 1;`
- D. `value += 2;`

Q14: In Arduino UNO in order to produce an equivalent analog output the following feature can be used:

- A. Use the internal ADC module
- B. Use the internal DAC module
- C. Use the internal PWM module
- D. Use external ADC module

Complete the following program in order to produce 50% PWM signal at pin 3.

Q15: The missing code at line 2 is:

- A. `pinMode (3, OUTPUT);`
- B. `pinMode (3, INPUT);`
- C. `pinMode (3, ANALOG);`
- D. `pinMode (3, PWM);`

```
1 void setup() {  
2  
3 }  
4 void loop() {  
5  
6 }
```

Q16: The missing code at line 5 is:

- A. `digitalWrite(3, 128);`
- B. `pwmWrite(3, 0.5);`
- C. `analogWrite(3, 128);`
- D. `analogWrite(3, 50);`

Q17: LDR is a sensor used for:

- A. Measuring Light Intensity
- B. Line Detection
- C. Detection of object motion in Long Distance Ranges
- D. None of the above.



A. while(digitalRead(3)==HIGH);  
B. while(digitalRead(3)==LOW);  
C. digitalWrite(3, LOW); digitalWrite(3, HIGH); delay(10); digitalWrite(3, LOW);  
D. digitalWrite(3, HIGH); digitalWrite(3, LOW); delay(10); digitalWrite(3, HIGH);

```

1 int lookup (int x, int xStart, int xStep, int yValues[], int nYValues)
2 {
3     if (x > (xStart + xStep * (nYValues-1))) return (...);
4     if (x < xStart) return yValues (...);
5     int index = (x - xStart) / xStep;
6     float fraction = (...);
7     return (int) (yValues[index] - fraction * (yValues [index] - yvalues[index+1]));
8 }

```

A. yValues[0]  
B. yValues[nYValues]  
C. yValues[nYValues-1]  
D. 0

A. yValues[0]  
B. yValues[nYValues]  
C. yValues[nYValues-1]  
D. 0

A.  $\text{float}(x - (\text{index} * x\text{Step} + x\text{Start})) / (x\text{Step})$   
 B.  $(x - \text{index} * x\text{Step} - x\text{Start}) / x\text{Step}$   
 C.  $(x - \text{index} * x\text{Step} - x\text{Start}) / \text{float}(nY\text{Values})$   
 D.  $(x - \text{index} - x\text{Step} - x\text{Start}) / \text{float}(x\text{Step})$

A. Arduino supports one hardware-based serial, multiple software-based serial interfaces  
B. Arduino supports one hardware-based serial, one software-based serial interfaces  
C. Arduino supports only one hardware-based serial interface  
D. Arduino supports only one software-based serial interface