

1

What is the primary purpose of using delays when blinking an LED with the 8051 microcontroller?

Option_a: To control the LED brightness

Option_b: To ensure the LED is visible to the human eye

Option_c: To make the LED blink faster

Option_d: To save power

correct_option: To ensure the LED is visible to the human eye

2

Which port is commonly used to connect an LED to the 8051 microcontroller for blinking purposes?

Option_a: Port 0

Option_b: Port 1

Option_c: Port 2

Option_d: Port 3

correct_option: Port 1

3

What is the effect of increasing the delay between LED toggles in an 8051 blinking program?

Option_a: The LED blinks slower

Option_b: The LED blinks faster

Option_c: The LED brightness increases

Option_d: The LED remains on

correct_option: The LED blinks slower

4

Which command toggles the state of an LED connected to Port 1, Pin 0 in the 8051 microcontroller?

Option_a: SETB P1.0

Option_b: CLR P1.0

Option_c: CPL P1.0

Option_d: MOV P1.0, #1

correct_option: CPL P1.0

5

What does the CPL (complement) instruction do in 8051?

Option_a: Sets the specified bit to 1

Option_b: Sets the specified bit to 0

Option_c: Inverts the state of the specified bit

Option_d: Shifts the bit left

correct_option: Inverts the state of the specified bit

6

In an LED chaser circuit using 8051, which instruction is commonly used to shift the LED pattern?

Option_a: OR

Option_b: AND

Option_c: Rotate (RL or RR)

Option_d: XOR

correct_option: Rotate (RL or RR)

7

What is the purpose of an LED chaser circuit?

Option_a: To control the brightness of LEDs

Option_b: To sequentially turn on and off LEDs in a pattern

Option_c: To blink all LEDs at once

Option_d: To monitor the current flowing through LEDs

correct_option: To sequentially turn on and off LEDs in a pattern

8

Which delay value would be most appropriate for an observable LED chaser effect in Proteus?

Option_a: 1 ms

Option_b: 100 ms

Option_c: 1 s

Option_d: 5 s

correct_option: 100 ms

9

Which technique is commonly used to achieve a fade-in and fade-out effect with an LED in 8051?

Option_a: Changing the voltage directly

Option_b: Pulse Width Modulation (PWM)

Option_c: Increasing current

Option_d: Decreasing resistance

correct_option: Pulse Width Modulation (PWM)

10

What happens to the LED brightness when the PWM duty cycle is increased?

Option_a: LED brightness increases

Option_b: LED brightness decreases

Option_c: LED turns off

Option_d: LED blinks faster

correct_option: LED brightness increases

11

In a fade-out effect, what happens to the duty cycle over time?

Option_a: It increases gradually

Option_b: It decreases gradually

Option_c: It remains constant

Option_d: It toggles randomly

correct_option: It decreases gradually

12

What is the primary purpose of generating a square wave with the 8051 microcontroller?

Option_a: To provide a signal for digital clocks

Option_b: To turn on an LED continuously

Option_c: To monitor current through components

Option_d: To display analog signals

correct_option: To provide a signal for digital clocks

13

Which mode of the 8051 timer is commonly used to generate a square wave?

Option_a: Mode 0

Option_b: Mode 1

Option_c: Mode 2 (Auto-reload mode)

Option_d: Mode 3

correct_option: Mode 2 (Auto-reload mode)

14

To produce a square wave on Port 1, Pin 0, which instruction can be used to toggle the pin state?

Option_a: SETB P1.0

Option_b: CLR P1.0

Option_c: CPL P1.0

Option_d: MOV P1.0, #0

correct_option: CPL P1.0

15

In a square wave generation circuit, what determines the frequency of the square wave?

Option_a: The delay duration between toggles

Option_b: The microcontroller clock speed

Option_c: The number of LEDs connected

Option_d: The operating voltage

correct_option: The delay duration between toggles

16

What is the typical crystal oscillator frequency used with the 8051 microcontroller for LED control projects?

Option_a: 8 MHz

Option_b: 11.0592 MHz

Option_c: 16 MHz

Option_d: 4 MHz

correct_option: 11.0592 MHz

17

Which port in the 8051 microcontroller can also function as an address/data bus when used externally?

Option_a: Port 0

Option_b: Port 1

Option_c: Port 2

Option_d: Port 3

correct_option: Port 0

18

What role does the 'TMOD' register play when generating a square wave using the 8051 microcontroller?

Option_a: It sets the delay

Option_b: It configures the timer mode

Option_c: It controls the output pins

Option_d: It enables the PWM

correct_option: It configures the timer mode

19

When using a square wave to toggle an LED, what would be the frequency if the delay is set to 500 ms?

Option_a: 1 Hz

Option_b: 2 Hz

Option_c: 0.5 Hz

Option_d: 4 Hz

correct_option: 1 Hz

20

Which instruction would set all pins on Port 2 of the 8051 to output high?

Option_a: MOV P2, #00H

Option_b: MOV P2, #FFH

Option_c: SETB P2

Option_d: CLR P2

correct_option: MOV P2, #FFH

21

Which of the following is an 8051 timer register used for timing in LED and square wave projects?

Option_a: TMOD

Option_b: PCON

Option_c: PSW

Option_d: SP

correct_option: TMOD

22

For an LED chaser circuit, which register is commonly used to shift bits in assembly language for the 8051?

Option_a: ACC (Accumulator)

Option_b: PSW

Option_c: DPH

Option_d: B register

correct_option: ACC (Accumulator)

23

In the 8051, which command is used to jump to a specific label unconditionally, often used in loops?

Option_a: JMP

Option_b: SJMP

Option_c: LJMP

Option_d: All of the above

correct_option: All of the above

24

To observe the square wave generated on a port pin in Proteus, which Proteus tool should you use?

Option_a: Oscilloscope

Option_b: Voltmeter

Option_c: Ammeter

Option_d: LED

correct_option: Oscilloscope

25

In LED fade-in/fade-out projects, adjusting the PWM frequency too high might cause:

Option_a: Brighter LED

Option_b: Flickering LED

Option_c: Faster fading

Option_d: Slower fading

correct_option: Flickering LED

26

Which of the following Proteus component models can simulate an 8051 microcontroller?

Option_a: AT89C51

Option_b: PIC16F877A

Option_c: ATmega328P

Option_d: STM32F103

correct_option: AT89C51

27

Which instruction in 8051 assembly code is used to add a value to the accumulator (A)?

Option_a: ADD

Option_b: SUB

Option_c: INC

Option_d: MUL

correct_option: ADD

28

Which port pin configuration command should be used to make all pins of Port 1 low in 8051?

Option_a: MOV P1, #FFH

Option_b: MOV P1, #00H

Option_c: SETB P1

Option_d: CLR P1

correct_option: MOV P1, #00H

29

What is the function of the `ANL` instruction in 8051 programming, which is sometimes used in LED control applications?

Option_a: Adds two numbers

Option_b: Performs a bitwise AND operation

Option_c: Performs a bitwise OR operation

Option_d: Clears a port

correct_option: Performs a bitwise AND operation

30

In the 8051, which of the following could cause an LED not to turn on in Proteus, assuming correct wiring?

Option_a: Incorrect port configuration

Option_b: No delay in the program

Option_c: Insufficient power supply

Option_d: All of the above

correct_option: All of the above

31

Which timer mode of the 8051 microcontroller is typically used for an 8-bit auto-reload timer?

Option_a: Mode 0

Option_b: Mode 1

Option_c: Mode 2

Option_d: Mode 3

correct_option: Mode 2

32

What does `MOV A, #55H` do in 8051 assembly language?

Option_a: Moves the value 55H to Port A

Option_b: Sets all bits of the accumulator to high

Option_c: Loads the value 55H into the accumulator

Option_d: Sends the value 55H to Port 0

correct_option: Loads the value 55H into the accumulator

33

What is the purpose of using `NOP` (No Operation) in assembly language?

Option_a: To introduce a small delay

Option_b: To reset the microcontroller

Option_c: To clear a port

Option_d: To load a value into the accumulator

correct_option: To introduce a small delay

34

In 8051 assembly, which instruction is used to jump to a subroutine?

Option_a: CALL

Option_b: AJMP

Option_c: SJMP

Option_d: LCALL

correct_option: LCALL

35

What will 'DJNZ R1, LABEL' do in the 8051?

Option_a: Increment the value of R1

Option_b: Decrement the value of R1 and jump to LABEL if R1 is not zero

Option_c: Jump to LABEL unconditionally

Option_d: Set R1 to zero

correct_option: Decrement the value of R1 and jump to LABEL if R1 is not zero

36

Which of the following components is necessary in Proteus to simulate an LED blink project with an 8051 microcontroller?

Option_a: Oscillator

Option_b: LED

Option_c: Resistor

Option_d: All of the above

correct_option: All of the above

37

When using an external oscillator with an 8051 in Proteus, where should it be connected?

Option_a: To Port 1

Option_b: To XTAL1 and XTAL2 pins

Option_c: To any I/O port

Option_d: To the power supply pins

correct_option: To XTAL1 and XTAL2 pins

38

Which register holds the most significant byte of a 16-bit timer in the 8051?

Option_a: TH0

Option_b: TL0

Option_c: TCON

Option_d: PCON

correct_option: TH0

39

What is the function of the 'TCON' register in the 8051?

Option_a: Controls the stack pointer

Option_b: Controls timer and external interrupt flags

Option_c: Loads values into the timer

Option_d: Sets the frequency of the clock

correct_option: Controls timer and external interrupt flags

40

Which LED color typically requires the highest forward voltage to turn on?

Option_a: Red

Option_b: Green

Option_c: Blue

Option_d: Yellow

correct_option: Blue

41

What will happen if no delay is used in an LED toggle program for the 8051?

Option_a: The LED will not turn on

Option_b: The LED will blink too quickly to observe

Option_c: The LED will stay off

Option_d: The LED will slowly turn on

correct_option: The LED will blink too quickly to observe

42

Which 8051 instruction is used to clear the accumulator (A) register?

Option_a: CLR A

Option_b: MOV A, #00H

Option_c: MOV A, R0

Option_d: MOV A, #0

correct_option: CLR A

43

In 8051, which flag in the 'PSW' register is set if an arithmetic overflow occurs?

Option_a: Parity (P)

Option_b: Carry (CY)

Option_c: Overflow (OV)

Option_d: Auxiliary Carry (AC)

correct_option: Overflow (OV)

44

What is the typical function of an LED resistor in microcontroller circuits?

Option_a: To prevent short circuits

Option_b: To limit current through the LED

Option_c: To increase voltage

Option_d: To decrease brightness

correct_option: To limit current through the LED

45

Which 8051 instruction would set the carry (CY) flag in the 'PSW' register?

Option_a: CLR C

Option_b: SETB C

Option_c: MOV C, #1

Option_d: ORL C

correct_option: SETB C

46

When using an 8051, the instruction `MOV P1, A` performs which action?

Option_a: Clears all bits of Port 1

Option_b: Sends the accumulator's contents to Port 1

Option_c: Loads Port 1 contents into the accumulator

Option_d: Increments the value of Port 1

correct_option: Sends the accumulator's contents to Port 1

47

Which Proteus instrument is used to measure frequency in a square wave generation project?

Option_a: Voltmeter

Option_b: Oscilloscope

Option_c: Ammeter

Option_d: Logic Analyzer

correct_option: Oscilloscope

48

Which of the following is used to program an 8051 microcontroller in Proteus simulations?

Option_a: .HEX file

Option_b: .EXE file

Option_c: .BIN file

Option_d: .OBJ file

correct_option: .HEX file

49

To perform bitwise OR in the 8051, which instruction is used?

Option_a: ANL

Option_b: ORL

Option_c: ADD

Option_d: INC

correct_option: ORL

50

Which is a commonly used assembly language directive in 8051 programming?

Option_a

Option_b: ORG

Option_c: LOOP

Option_d: JUMP

correct_option: ORG

51

Which 8051 instruction rotates bits in the accumulator to the left?

Option_a: RRC

Option_b: RLC

Option_c: RR

Option_d: RL

correct_option: RLC

52

The timer flag 'TF0' is set when:

Option_a: Timer 1 overflows

Option_b: Timer 0 overflows

Option_c: An interrupt occurs

Option_d: Timer stops

correct_option: Timer 0 overflows

53

What does 'MOVX' instruction do in the 8051?

Option_a: Moves data to an I/O port

Option_b: Moves data to external memory

Option_c: Moves data to program memory

Option_d: Moves data within internal memory

correct_option: Moves data to external memory

54

What frequency does the 8051 produce at Port 1 with a 12 MHz crystal and a 1 ms delay between toggles?

Option_a: 500 Hz

Option_b: 1 kHz

Option_c: 250 Hz

Option_d: 1 Hz

correct_option: 500 Hz

55

Which 8051 instruction adds the contents of R2 to the accumulator?

Option_a: ADD A, #R2

Option_b: ADD R2, A

Option_c: ADD A, R2

Option_d: ADD R2, R2

correct_option: ADD A, R2

56

In Proteus, to view current flowing through an LED, you would use:

Option_a: Voltmeter

Option_b: Ammeter

Option_c: Oscilloscope

Option_d: Timer

correct_option: Ammeter

57

Which instruction is used to stop the 8051 microcontroller in low-power mode?

Option_a: STOP

Option_b: SETB PCON

Option_c: MOV PCON, #00H

Option_d: MOV PCON, #10H

correct_option: MOV PCON, #10H

58

Which register in the 8051 microcontroller is used to set the serial communication mode?

Option_a: TCON

Option_b: SCON

Option_c: PCON

Option_d: PSW

correct_option: SCON

59

What is the purpose of the EA (External Access) pin in the 8051 microcontroller?

Option_a: It enables external interrupts

Option_b: It enables or disables access to external memory

Option_c: It controls the I/O ports

Option_d: It resets the microcontroller

correct_option: It enables or disables access to external memory

60

In the 8051, which timer mode allows the timer to act as two separate 8-bit timers?

Option_a: Mode 0

Option_b: Mode 1

Option_c: Mode 2

Option_d: Mode 3

correct_option: Mode 3

61

Which instruction in the 8051 is used to copy the content of the accumulator to a register?

Option_a: MOV R1, A

Option_b: MOV A, R1

Option_c: ADD R1, A

Option_d: MOVX R1, A

correct_option: MOV R1, A

62

In the 8051, which flag in the PSW register indicates if the last result was zero?

Option_a: Carry (CY)

Option_b: Parity (P)

Option_c: Auxiliary Carry (AC)

Option_d: Overflow (OV)

correct_option: Parity (P)

63

Which instruction in 8051 assembly code would be used to branch if the accumulator is zero?

Option_a: JNZ

Option_b: JZ

Option_c: JC

Option_d: JNC

correct_option: JZ

64

In Proteus, what does setting an LED's "Forward Voltage" property affect?

Option_a: The brightness of the LED

Option_b: The required current for the LED

Option_c: The color of the LED

Option_d: The LED's response time

correct_option: The brightness of the LED

65

Which instruction will perform an unconditional long jump in the 8051?

Option_a: AJMP

Option_b: SJMP

Option_c: LJMP

Option_d: DJNZ

correct_option: LJMP

66

Which of the following ports in 8051 can be used as both an I/O port and as part of the address bus for external memory?

Option_a: Port 0 and Port 1

Option_b: Port 0 and Port 2

Option_c: Port 1 and Port 3

Option_d: Port 2 and Port 3

correct_option: Port 0 and Port 2

67

Which 8051 instruction rotates the accumulator bits to the right with carry?

Option_a: RRC

Option_b: RLC

Option_c: RR

Option_d: RL

correct_option: RRC

68

What will 'CPL A' do in an 8051 program?

Option_a: Clear the accumulator

Option_b: Complement (invert) all bits in the accumulator

Option_c: Copy the accumulator to another register

Option_d: Copy a register to the accumulator

correct_option: Complement (invert) all bits in the accumulator

69

To create a long delay for LED blinking in an 8051, which technique is commonly used?

Option_a: Using a high-frequency oscillator

Option_b: Nested loops

Option_c: Only using the timer interrupt

Option_d: Shortening the program

correct_option: Nested loops

70

In Proteus, which component should be connected to simulate a power supply for the 8051?

Option_a: LED

Option_b: Battery

Option_c: Switch

Option_d: Oscilloscope

correct_option: Battery

71

Which directive in assembly code specifies the starting address of a program in the 8051?

Option_a

Option_b: EQU

Option_c: ORG

Option_d: DB

correct_option: ORG

72

What function does the 'SJMP' instruction perform in 8051 assembly language?

Option_a: Short jump within 256 bytes

Option_b: Long jump within 4 KB

Option_c: No operation

Option_d: Sets the carry flag

correct_option: Short jump within 256 bytes

73

If you want to control the speed of an LED chaser with the 8051, which variable should you adjust?

Option_a: The number of LEDs
Option_b: The delay between steps
Option_c: The LED brightness
Option_d: The oscillator frequency
correct_option: The delay between steps

74

What effect does the instruction `MOVC A, @A+DPTR` have in an 8051 program?

Option_a: Moves a value to the accumulator from code memory
Option_b: Clears the accumulator
Option_c: Adds a value to the accumulator
Option_d: Moves a value from the accumulator to a register
correct_option: Moves a value to the accumulator from code memory

75

Which command in the 8051 enables interrupts?

Option_a: SETB IE
Option_b: MOV A, IE
Option_c: SETB EA
Option_d: CLR IE
correct_option: SETB EA

76

In Proteus, what would you use to observe changes in the voltage levels of the 8051 microcontroller's output?

Option_a: Ammeter
Option_b: Oscilloscope
Option_c: Logic Probe
Option_d: Frequency Meter

correct_option: Oscilloscope

77

Which 8051 port pins are typically used for serial communication?

Option_a: P1.0 and P1.1

Option_b: P3.0 and P3.1

Option_c: P2.0 and P2.1

Option_d: P0.0 and P0.1

correct_option: P3.0 and P3.1

78

What is the primary purpose of the 'RET' instruction in 8051 assembly?

Option_a: Jump to a new address

Option_b: Stop program execution

Option_c: Return from a subroutine

Option_d: Load a value to the accumulator

correct_option: Return from a subroutine

79

In the 8051 microcontroller, which register is used to set the baud rate for serial communication?

Option_a: TCON

Option_b: TMOD

Option_c: TH1

Option_d: PCON

correct_option: TH1

80

What value would you move to the 'PCON' register to double the baud rate of serial communication in 8051?

Option_a: 00H

Option_b: 10H

Option_c: 20H

Option_d: 40H

correct_option: 80H