

**MODULE 03 8051 Stack and Interrupt, Timers**  
**QUESTION BANK**

**8051 Stack and Interrupt**

1. Define stack. Explain the operation of stack in detail.  
Or  
Define stack. Explain the PUSH and POP operation in 8051
2. Differentiate between the polling and interrupt.
3. Define interrupt. Explain the steps in executing an interrupt.
4. Explain the interrupt vector table of 8051.
5. Write the steps in enabling and disabling an 8051 interrupt.
6. Explain the level triggered interrupt in 8051.
7. Explain the Edge triggered interrupt in 8051.
8. Explain the interrupt priority in 8051.
9. Show the instruction
  - a) To enable serial interrupt b) Timer0 interrupt c) External hardware interrupt1 (EX1)
  - b) To disable all the interrupt.
10. Assume that after reset, the interrupt priority is set by the instruction "MOV IP , #00001100B.  
Discuss the sequence in which the interrupt are serviced.

**8051 Timers**

1. Explain the TMOD register of 8051 in detail.
2. Configure Timer0 to run as
  - a) 16bit timer with only internal control
  - b) 16bit timer with external control
  - c) 16bit counter with internal control
  - d) 16bit counter with external control
3. Find the value of TMOD to operate as timer in following mode.
  - a) Mode1 Timer1
  - b) Mode2 Timer0
  - c) Mode0 Timer1
4. Find the timer clock frequency and its period for various 8051 based system with following crystal frequency.
  - a) 12MHZ b) 16MHZ c) 11.0592MHZ
5. Explain the TCON register in detail.
6. Explain the steps to program in mode1.
7. Explain the procedure for time delay generation.
8. Write an assembly language program to generate a delay of 12μsec using timer1 in mode1 with crystal frequency of 22MHZ.

### OBJECTIVE TYPES QUESTIONS

1. PUSH supports only
  - a) Direct addressing mode
  - b) Indirect addressing mode
  - c) Register addressing mode
  - d) Immediate addressing mode
2. When PUSH operation take place
  - a) SP is incremented by two
  - b) SP is incremented by one
  - c) SP is incremented by three
  - d) SP is incremented by four
3. By default stack pointer points to
  - a) 0FFh
  - b) 00h
  - c) 07h
  - d) 0FEh
4. POP supports only
  - a) Direct addressing mode
  - b) Indirect addressing mode
  - c) Register addressing mode
  - d) Immediate addressing mode
5. POP A is
  - a) Valid instruction
  - b) Invalid instruction
  - c) All of these
  - d) None of these
6. Pushing the data on to the stack is called
  - a) SWAP
  - b) POP
  - c) PUSH
  - d) None of these

7. Retrieving the data from the stack is called
- a) SWAP
  - b) POP
  - c) PUSH
  - d) None of these
8. ISR stands for
- a) Interrupt service routine
  - b) Increment service routine
  - c) Interrupt swap routine
  - d) None of these
9. How many interrupts are there in 8051
- a) Six
  - b) Eight
  - c) Twelve
  - d) Ten
10. Priority can be assign to the 8051 interrupt
- A) Yes
  - B) NO
  - C) None of these
  - D) All of these
11. Timer1 is \_\_\_\_bit register
- A) 8bit
  - B) 4bit
  - C) 16bit
  - D) 32bit
12. Timer0 is \_\_\_\_bit register
- a) 8bit
  - b) 4bit
  - c) 16bit
  - d) 10bit
13. TMOD is an \_\_\_\_bit register
- a) 8bit
  - b) 10bit
  - c) 12bit
  - d) 16bit

14. TMOD can be configure as

- a) Timer
- b) Counter
- c) Both Timer and Counter
- d) None of these

15. Mode0 operating as

- a) 13bit timer
- b) 16bit timer
- c) 8bit auto reload mode
- d) Split mode

16. Mode1 operating as

- a) 13bit timer
- b) 16bit timer
- c) 8bit auto reload mode
- d) Split mode

17. Mode2 operating as

- a) 13bit timer
- b) 16bit timer
- c) 8bit auto reload mode
- d) Split mode

18. Mode3 operating as

- a) 13bit timer
- b) 16bit timer
- c) 8bit auto reload mode
- d) Split mode

19. TCON is a \_\_\_\_ bit register

- a) 4bit
- b) 8bit
- c) 16bit
- d) 32bit

20. Timer is used to

- a) Generate a delay
- b) Generate count
- c) Clear the value
- d) Set the value