

**ET355: MICROPROCESSORS**  
**Homework Assignment #3**

CIRCLE THE CORRECT ANSWER

1. A microprocessor always has which of the following components on the chip itself?

- a. UART
- b. CPU
- c. ROM
- d. Timers

2. The 8051 carry flag is set whenever \_\_\_\_\_.

- a. there is a carry from the D3 to the D4 bit
- b. there is a carry beyond the D7 bit
- c. the A register contains an odd number of 1s
- d. the A register contains an even number of 1s

3. Which of the following registers can be used for register indirect addressing mode of "MOV A, @Rx"?

- a. R0 and R7
- b. R0 and R1
- c. R6 and R7
- d. R5 and R3

4. Which of the following is the address of the last ROM memory location in an 8051 that has 4K bytes of ROM?

- a. 0FFFH
- b. 0000H
- c. 1FFFH
- d. 007FH

5. Which of the following addressing modes describes the instruction MOV A, #95H?

- a. Register
- b. Direct
- c. Immediate
- d. Indexed

6. Which of the following instructions is **invalid**?
- a. MOV A, @R0
  - b. MOV P1, A
  - c. MOV A, #R3
  - d. MOV A, R0
7. The program counter in the 8051 is a(n) \_\_\_\_\_ register.
- a. 16-bit
  - b. 20-bit
  - c. 8-bit
  - d. 12-bit
8. Which RAM memory space is used for the register bank 0?
- a. 0000H-0007H
  - b. 0008H-000FH
  - c. 0010H-0017H
  - d. 0018H-001FH
9. Upon reset, what is the content of the program counter register?
- a. 0FFFH
  - b. 0010H
  - c. 0003H
  - d. 0000H
10. Which register contains the address of the instruction to be executed next?
- a. R0
  - b. A
  - c. PC
  - d. SP
11. The DPTR is a(n) \_\_\_\_\_ register.
- a. 16-bit
  - b. 20-bit
  - c. 8-bit
  - d. 12-bit

12. What is the largest value that can be loaded into register R7?

- a. FFH
- b. 100H
- c. 99H
- d. 200H

13. After the following program is run, the carry bit flag is CY=0.

MOV A, #55H

ADD A, #AAH

- a. True
- b. False

14. The instruction "DJNZ R5, OVER" can be used to repeat an action for a maximum of

\_\_\_\_\_ times.

- a. 65,535
  - b. 1000
  - c. 10,000
  - d. 256
15. LCALL is a \_\_\_\_\_ instruction.

- a. 1-byte
  - b. 2-byte
  - c. 3-byte
  - d. 4-byte
16. Which 8051 instruction is used to jump anywhere in a program?
- a. SJMP
  - b. LJMP
  - c. JNC
  - d. DJNZ

17. What is the final result in the accumulator following the execution of the following program segment?

MOV A, #27H

ANL A, #0FH

- a. 02H
- b. 2FH
- c. 20H
- d. 07H

18. What is the final result in Port 2 after the execution of the following program segment?

```
MOV A, #91H
ORL A, #1AH
MOV P2, A
```

- a. 91H
- b. 1AH
- c. 9BH
- d. 11H

19. What is the final result in Port 1 after the execution of the following program segment?

```
MOV A, #55H
XRL A, #AAH
MOV P1, A
```

- a. 00H
- b. 55H
- c. AAH
- d. FFH

20. What is the final result in Port 1 after the execution of the following program segment?

```
MOV A, #55H
CPL A
MOV P1, A
```

- a. 00H
- b. 55H
- c. AAH
- d. FFH