Reg. No. ☐☐☐☐☐☐☐☐☐☐☐☐☐

Question Paper Code | 13112

B.E. / B.Tech. - DEGREE EXAMINATIONS, NOV / DEC 2024
Fifth Semester
Computer Science Engineering
(Common to Information Technology)
20ESEC502 - MICROPROCESSORS AND MICROCONTROLLERS
Regulations - 2020

Duration: 3 Hours   Max. Marks: 100

PART - A (MCQ) (20 × 1 = 20 Marks)
Answer ALL Questions

		Marks	K–Level	CO

1. A microprocessor with 8-bit can process_____ bits of data at a time. — *1 K1 CO1*
   (a) 4   (b) 8   (c) 12   (d) 16
2. The instruction MOV CL,DH is an example of which addressing mode of 8086 Microprocessor ? — *1 K1 CO1*
   (a)Immediate   (b)Register   (c)Direct   (d)Indirect
3. 8086 needs external clock with _____duty cycle — *1 K1 CO1*
   (a) 22%   (b) 33%   (c) 20%   (d) 16%
4. The normal time taken by memory read cycle is_____ clock periods — *1 K1 CO2*
   (a) 4   (b) 3   (c) 2   (d) 1
5. The group of conducting lines that is directly connected to the microprocessor is_____ bus — *1 K1 CO2*
   (a) CPU   (b) Address   (c) Data   (d) System
6. Multiplexing is not allowed in_____ bus — *1 K1 CO2*
   (a) CPU   (b) Address   (c) Data   (d) System
7. What is the purpose of password validation in 8086 assembly language programming? — *1 K1 CO3*
   (a) To restrict access to a program   (b) To encrypt data
   (c) To decrypt data   (d) To display a message
8. Which of the following registers is commonly used to hold the string length in 8086 assembly language? — *1 K1 CO3*
   (a) AX   (b) BX   (c) CX   (d) DX
9. Which of the following registers is commonly used to hold the uppercase letter in 8086 assembly language? — *1 K1 CO3*
   (a) AL   (b) AH   (c) BL   (d) BH
10. Which port of the 8255 PPI is capable of performing the handshaking function with the interfaced devices? — *1 K1 CO4*
    (a) Port A   (b) Port B   (c) Port C   (d)All of the above
11. The 8255 port works in the I/O mode will perform the following action. — *1 K1 CO4*
    (a) Programmable I/O ports   (b) Set pins   (c) Reset pins   (d)None of these
12. Strobed input/output mode is also known as — *1 K1 CO4*
    (a) Mode 0   (b) Mode 1   (c) Mode 2   (d) None of these
13. 8051 Microcontroller has _____ register banks. — *1 K1 CO5*
    (a) 4   (b) 8   (c) 16   (d) 32
14. How many bytes of bit addressable memory is present in 8051 based microcontrollers? — *1 K1 CO5*
    (a) 8 bytes   (b) 32 bytes   (c) 16 bytes   (d) 128 bytes
15. The address register for storing the 16-bit addresses can only be — *1 K1 CO5*
    (a) stack pointer   (b) data pointer   (c) instruction register   (d) accumulator
16. The instruction, ADD A, R7 is an example of — *1 K1 CO5*
    (a) register instructions   (b) register specific instructions
    (c) indexed addressing   (d) none

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create   **13112**

17. CJNE is meant for _____ instructions   *1*   *K1*   *CO6*
    (a) Compare and jump if not equal   (b) Compare if not equal
    (c) Jump if not equal   (d) Clear if not equal
18. SJMP is for _____   *1*   *K1*   *CO6*
    (a) serial Jump   (b) short jump   (c) short clear   (d) none
19. The traffic light control system has been developed using _____   *1*   *K1*   *CO6*
    (a) 8086   (b) 8051   (c) 8098   (d) 8253
20. The LEDs are interfaced to the system through _____   *1*   *K1*   *CO6*
    (a) buffer   (b) gate   (c) relay   (d) motor

PART - B (10 × 2 = 20 Marks)
Answer ALL Questions

21. Define addressing mode.	*2*	*K1*	*CO1*
22. Define Instruction Cycle.	*2*	*K1*	*CO1*
23. Define Macros.	*2*	*K1*	*CO2*
24. List the address bus and data bus in 8086.	*2*	*K1*	*CO2*
25. Define modular programming.	*2*	*K1*	*CO3*
26. Write an ALP to compute multiplication of two 16 bit numbers using 8086 instruction set.	*2*	*K2*	*CO3*
27. List the operating modes of 8254 timer.	*2*	*K1*	*CO4*
28. State key debouncing.	*2*	*K1*	*CO4*
29. Define relative addressing in 8051.	*2*	*K1*	*CO5*
30. Write an ALP program for logical OR operations in 8051.	*2*	*K2*	*CO6*

PART - C (6 × 10 = 60 Marks)
Answer ALL Questions

31. a) Explain about Registers used in 8086 Microprocessors in detail.	*10*	*K2*	*CO1*
OR			
b) Discuss in detail about Even and Odd Memory Banks.	*10*	*K2*	*CO1*
32. a) Discuss the assembler directives of 8086 in detail.	*10*	*K2*	*CO2*
OR			
b) Explain minimum and maximum mode signals of 8086 Microprocessor.	*10*	*K2*	*CO2*
33. a) Construct an Assembly Language program for Keyboard and display controller with algorithm.	*10*	*K3*	*CO3*
OR			
b) Construct an Assembly Language program for password validation with algorithm.	*10*	*K3*	*CO3*
34. a) Discuss briefly about Interrupt controller with near diagram.	*10*	*K2*	*CO4*
OR			
b) Explain in detail the internal block diagram of 8279 chip with a neat sketch.	*10*	*K2*	*CO4*
35. a) Explain the Special Function registers of 8051 in detail.	*10*	*K2*	*CO5*
OR			
b) Compare the Instruction set of 8051 Microcontroller.	*10*	*K2*	*CO5*
36. a) Construct the program to perform the Arithmetic (Multiplication and Division) and logical operations (NAND, NOR) using 8051.	*10*	*K3*	*CO6*
OR			
b) Explain in detail about 8051 serial port and write an assembly language program to perform serial communication.	*10*	*K3*	*CO6*

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create   **13112**