21U468S (Pages: 2) Name: ………………………

Reg. No: ……………………

FOURTH SEMESTER B.Voc. DEGREE EXAMINATION, APRIL 2023

(Information Technology)

CC18U GEC4 MC12 – MICROCONTROLLERS AND APPLICATIONS

(2018 to 2020 Admissions – Supplementary/Improvement)

Time: 3 Hours   Maximum: 80 Marks

PART A

Answer *all* questions. Each question carries 1 mark.

1. The 8051 family has ------------ pins for I/O

2. True or False:

   The special function registers are maintained in the next 128 locations after the general purpose data storage and stack.

3. The 8051 has ------------ parallel I/O ports.

4. True or False:

   Data transfer from I/O to external data memory can only be done with the MOV command

5. JZ, JNZ, instructions checked content of ------------ register.

6. ------------ is the clock source for the timers

7. When an interrupt is enabled, then where does the pointer move immediately after this interrupt has occurred?

8. ------------ is the clock source for the timers?

9. 8051 series has ------------ 16 bit registers.

10. An alternate function of port pin p3.1 in the 8051 is ------------

(10 × 1 = 10 Marks)

PART B

Answer any *eight* questions. Each question carries 2 marks.

11. What is DAC?

12. Define DPTR.

13. Differentiate between program memory and data memory.

14. Name three features of 8051.

15. Mention the four modes of timer operation.

16. What is the operand field?

17. What is the difference between direct and register indirect addressing mode?

18. Define clock cycle.

19. Mention two assembler directives.

20. What is software interrupt?

21. What does the term embedded system mean?

22. Define peripherals.

(8 × 2 = 16 Marks)

PART C
Answer any *six* questions. Each question carries 4 marks.

23. What are the advantages of a microcontroller?

24. What are the basic components present internally inside 8051?

25. What is SFR? What are the different categories of 8051 SFRs?

26. Give different steps followed by 8051 in response to interrupt.

27. Explain IP and IE registers.

28. What is data transfer instructions? Explain.

29. Explain interfacing of keyboard to 8051.

30. What is duplex transmission? What are the different modes of serial communication?

31. Explain the different assembler directives of 8051.

(6 × 4 = 24 Marks)

PART D
Answer any *two* questions. Each question carries 15 marks.

32. Explain different addressing modes used in 8051 microcontroller.

33. List the interrupts available in the 8051 microcontroller. Explain interrupt enable (IE) SFR and Interrupt priority (IP) SFR.

34. Explain interfacing of 4x4 matrix keyboard with 8051 microcontroller.
    Write a program for detection and identification of key activation.

35. Explain interfacing of 7 segment display with microcontroller.

(2 × 15 = 30 Marks)

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