

Faculty of Science

B.Sc(Electronics) III-Year, CBCS –VI Semester Regular Examinations June/July, 2022

PAPER-E1: Microcontroller and Applications

Time: 3 Hours

Max Marks: 80

Section-A

- I. Answer any *eight* of the following (8x4=32 Marks)
1. Describe memory organization of 8051 Microcontroller
 2. Explain salient features of 8051 Microcontroller.
 3. Give the alternate functions of port 3 pins of 8051 Microcontroller.
 4. Explain Jump and CALL instructions of 8051 Microcontroller .
 5. Explain the following instruction: (i) MOVC A, @A+DPTR (ii) DJNZ R2, Back.
 6. Discuss any 3 addressing modes of 8051.
 7. Explain Subroutines of 8051 Microcontroller.
 8. Explain Timer mode and Counter mode.
 9. What is the function of TF0 bit in TCON register?
 10. State the function of M1 and M0 bits in TMOD register?
 11. What is the function of SMOD in PCON register?
 12. What are registers used for serial communication in 8051?

Section-B

- II. Answer the following questions (4x12=48 Marks)
13. (a) What is Microcontroller? Explain the architecture of 8051 Microcontroller with block diagram.
(OR)
(b) Explain the following i) PSW register ii) Register banks iii) stack pointer in 8051 microcontroller
 14. (a) Explain data transfer group, arithmetic and logical instruction with two examples
(OR)
(b) Define Addressing modes and explain different addressing modes of Microcontroller.
 15. (a) Write an ALP to pickup smallest number from a given set of numbers.
(OR)
(b) Explain TMOD and TCON registers.
 16. (a) Explain the baud rates of serial communication in 8051.
(OR)
(b) Explain the interfacing of DAC 0808 with 8051 microcontroller.

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B.Sc (Electronics) III-Year, CBCS –VI Semester Backlog Examinations -Jan, 2023**PAPER: Microcontroller and Applications**

Time: 3 Hours

Max Marks: 80

Section-A

- I. Answer any *eight* of the following questions (8x4=32 Marks)
1. Discuss about Data types in 8051 microcontroller.
 2. Write a note on register banks and stack of 8051 microcontroller.
 3. Write the role of interrupts.
 4. Explain logical Instruction set of 8051 microcontroller.
 5. Write about PUSH and POP Opcodes.
 6. Write a program 8-Bit subtraction: Subtract 23H from 98H.
 7. With examples explain Rotate and Swap Operations.
 8. Write a program to generate time delay.
 9. Write a program for the division of Two-8 bit numbers.
 10. Write a short note on SBUF register.
 11. Discuss clock cycle and machine cycle.
 12. List the advantages of microcontroller over microprocessor.

Section-B

- II. Answer the following questions (4x12=48Marks)
- 13.(a) Explain the Architecture and different blocks in 8051 Microcontroller.
(OR)
(b) Explain about Memory Organization of 8051 microcontroller.
 - 14.(a) Explain JUMP, LOOP and CALL instructions with examples.
(OR)
(b) Discuss the different addressing modes of 8051 microcontroller with suitable example.
 - 15.(a) Write a program for the picking largest number among given set numbers.
(OR)
(b) Discuss various timer modes in 8051 microcontroller.
 - 16.(a) Draw the interfacing diagram of RS232 with 8051 and explain its operation
(OR)
(b) Explain DAC interface with diagram.
(c) Show the interfacing circuit and functional pins of LCD and explain.

Faculty of Science**B.Sc(Electronics) III-Year, CBCS–VI Semester Regular Examinations –June, 2023****PAPER: Microcontroller and Applications**

Time: 3 Hours

Max Marks: 80

Section-A

- I. Answer any *eight* of the following questions (8x4=32 Marks)
1. Enlist the salient features of the 8051 Microcontroller.
 2. Give the alternate functions of port 3 pins of 8051 Microcontroller.
 3. Briefly explain about PSW register and Stack pointer.
 4. Explain Loop and CALL instructions of 8051 Microcontroller.
 5. What are fields used in assembly language instructions as optional?
 6. What will be the execution time for the instruction MUL AB if the 8051 operates with 8 MHz clock.
 7. State the use of T0 pin of 8051?
 8. How many bit addressable locations are placed in internal RAM of 8051?
 9. Write program to generate a time delay.
 10. What is the function of SMOD in PCON register?
 11. How many timers are in 8051? Specify their names.
 12. What are registers used for serial communication in 8051?

Section-B

- II. Answer the following questions (4x12=48 Marks)
- 13.(a) Draw and explain Architecture and pin diagram of 8051 microcontroller.
(OR)
(b) Explain the memory organization and external memory interfacing of 8051.
 - 14.(a) Explain Instruction set of 8051 microcontroller with examples
(OR)
(b) Define Addressing modes and explain different addressing modes of Microcontroller.
 - 15.(a) Write an ALP to arrange a given set of numbers in descending order.
(OR)
(b) Explain TMOD and TCON registers.
 - 16.(a) Draw the interfacing diagram of RS232 with 8051 and explain its operation.
(OR)
(b) Explain the interfacing of Keyboard with 8051.
