

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) MOV 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
Regular Examinations –June/July, 2022
PAPER: Digital Communication

Time: 3 Hours

Max Marks: 80

Section-A

- I. Answer any *eight* of the following (8x4=32 Marks)
1. What is information rate and write the properties of information?
 2. Briefly explain elements of Digital communication.
 3. Discuss random signal and noise.
 4. Write a short note on PWM
 5. What are the advantages of digital communication over analog communication?
 6. Briefly explain PCM.
 7. What is an error? Explain types of errors.
 8. What is NRZ coding explain?
 9. What is hamming distance and explain?
 10. Write a short note on IOT.
 11. What are the applications of Global positioning Satellite system?
 12. Write about Bluetooth technology.

Section-B

- II. Answer the following (4x12=48 Marks)
13. (a) Explain complex Fourier spectrum and what are the properties of FT
(OR)
(b) Define entropy. Write its properties and explain mutual information.
 14. (a) What is PAM? Explain generation of PAM with mathematical representation and write its drawbacks.
(OR)
(b) Explain Adaptive delta modulation (ADM) with figures of transmitter and receiver. Write the advantages of ADM.
 15. (a) What are hamming codes? Draw structure of the encoder and decoder for a hamming code and explain.
(OR)
(b) What is Parity check code? Explain encoder and decoder for simple parity check code.
 16. (a) What is Paging System? Write types of paging systems and explain
(OR)
(b) Explain global positioning system.

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