



B.E DEGREE EXAMINATIONS: APRIL /MAY 2024

(Regulation 2018)

Fifth Semester

ELECTRICAL AND ELECTRONICS ENGINEERING

U18EEI5202: Microprocessors and Microcontrollers

COURSE OUTCOMES

- CO1:** Understand the fundamentals of Microprocessors.
CO2: Understand the architecture and instructions of 8051 Microcontroller to write programs using assembly language and Embedded C.
CO3: Apply the techniques to control the peripheral devices with Microcontrollers.
CO4: Understand the architecture and instructions of PIC Microcontrollers to write programs using Embedded C.
CO5: Analyze the interfacing modules of PIC Microcontrollers using an IDE.

Time: Three Hours

Maximum Marks: 100

Answer all the Questions:-

PART A (10 x 2 = 20 Marks)

(Answer not more than 40 words)

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|--|-----|-------------------|
| 1. Compare microprocessor and microcontroller? | CO1 | [K ₂] |
| 2. What is pipelining? Illustrate the stages of pipelining. | CO1 | [K ₂] |
| 3. Inspect the PSW register structure of 8051 Microcontroller. | CO2 | [K ₄] |
| 4. Infer the content of registers of A, B and the following flags S,Z and CY after executing the following instruction.
i. XRA A
ii. MVI B,4BH | CO2 | [K ₃] |
| 5. List the various data types used in 8051 microcontrollers. | CO2 | [K ₁] |
| 6. Identify the special function registers associated with serial communication? | CO3 | [K ₃] |
| 7. What are the addressing modes of PIC Microcontroller? | CO4 | [K ₁] |
| 8. Summarize the features of PIC microcontrollers. | CO4 | [K ₁] |
| 9. Outline the various timers available in PIC microcontroller. | CO5 | [K ₂] |
| 10. Recall are the various functions of PORTA pins in PIC microcontroller. | CO5 | [K ₁] |

Answer any FIVE Questions:-
PART B (5 x 16 = 80 Marks)
(Answer not more than 400 words)

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|-----|--|----|-----|-------------------|
| 11. | With neat diagram explain the internal architecture of 8-bit microprocessor in detail? | | CO1 | [K ₂] |
| 12. | a) Illustrate the memory organization in 8051. | 10 | CO2 | [K ₂] |
| | b) Explain different addressing modes of 8051 using relevant example instructions | 6 | CO2 | [K ₂] |
| 13. | a) Demonstrate the various operating modes of timer in 8051 microcontroller. | 10 | CO3 | [K ₂] |
| | b) Illustrate the interrupt structure of the 8051 microcontrollers. | 6 | CO2 | [K ₂] |
| 14. | a) Construct a circuit to interface LCD display to 8051 microcontrollers. | 10 | CO3 | [K ₃] |
| | b) Build an ALP to compute multiplication of two numbers using PIC microcontroller. | 6 | CO5 | [K ₃] |
| 15. | Demonstrate the architecture of PIC microcontroller in detail? | | CO4 | [K ₂] |
| 16. | Summarize on | | CO5 | [K ₂] |
| | i. I/O ports | | | |
| | ii. A/D converter | | | |
| | iii. PWM | | | |
| | in PIC microcontroller environment. | | | |
