C   **Reg. No. :** ☐☐☐☐☐☐☐☐☐☐☐☐☐

Question Paper Code: R4425

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2025

Fourth Semester

Computer Science and Engineering

R21UEC425- MICROPROCESSORS & MICROCONTROLLERS

(Regulations R2021)

Duration: Three hours   Maximum: 100 Marks

Answer ALL Questions

PART A - (5 x 1 = 5 Marks)

1. INTR is a -------- interrupt.   CO1-U

    (a) Maskable   (b) Hardware   (c) Software   (d) Both a &b

2. Which allows the full duplex synchronous communication between the master   CO1-U
and the slave

    (a) SPI   (b) Serial port   (c) I^2C (d) Parallel port

3. After reset, SP register is initialized to address___.   CO1-U

    (a) 8H   (b) 9H   (c) 7H   (d) 6H

4. For writing commands on an LCD, RS bit is   CO1-U

    (a) Set   (b) Reset   (c) Set & Reset   (d) none of the mentioned

5. Which status bits exhibit carry from lower 4 bits during 8-bit addition and are   CO1-U
especially beneficial for BCD addition?

    (a) Carrybit (C)   (b) DigitsCarrybit(DC)   (c) Botha&b   (d) None of the above

PART – B (5 x 3= 15 Marks)

6. Compare and contrast the difference between Minimum mode and maximum   CO1-U
mode configuration in 8086 microprocessor.

7. Initialize 8251 for Asynchronous operation with baud rate 16, character   CO 2- App
length 6 bit, Even parity and 2 stop bits.

8. Differentiate Microprocessor and Microcontroller.   CO1-U

9. Write 8051 ALP to generate the square wave on Port 1 using DAC.   CO 2-App

10. Illustrate the role of aurdino micro controller. CO1-U

PART – C (5 x 16= 80 Marks)

11. (a) Demonstrate the internal architecture of 8086 microprocessor with neat diagram. CO1-U (16)

Or

(b) Explain the concept of Procedures with an example. CO1-U (16)

12. (a) Interpret the type of interfacing device needed to transfer the data serially with 8086. CO1-U (16)

Or

(b) Explain in detail about DMA controller with a neat sketch. CO1-U (16)

13. (a) Develop 8051 program to move a block of data from external program memory to external data memory. CO2-App (16)

Or

(b) Write a program to set and mask the bits of input data B5H and F6H. Calculate the output of the program with the given hexadecimal data. CO2-App (16)

14. (a) Explain the interfacing of D/A converter with 8051 microcontroller with neat diagram. CO1-U (16)

Or

(b) Explain how stepper motor is interface with 8051 microcontroller. CO1-U (16)

15. (a) With a neat diagram explain in detail about the architecture of aurdino microcontroller. CO1-U (16)

Or

(b) Illustrate the memory organizing in aurdino microcontroller explain in detail about it. CO1-U (16)

R4425