C **Reg. No. :** | | | | | | | | | | | | |

Question Paper Code: R5402

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

Fifth Semester

Electronics and Communication Engineering

R21UEC502- MICROPROCESSORS, MICROCONTROLLERS & APPLICATIONS

(Regulations R2021)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (5 x 1 = 5 Marks)

1. In 8086 and 8088 processor the data bus is _____bit wide. CO1- U

   (a) 8 bit and 16 bit (b) 16 bit and 8 bit (c) 16 bit and 32 bit (d) 32 bit and 16 bit

2. Find the output of A if XRA A instruction is executed. CO2- App

   (a) 00H (b) 11H (c) 01H (d) FFH

3. ANL instruction is used _____. CO1-U

   (a) to AND the contents of the two registers (b) to mask the status of the bits

   (c) all of the mentioned (d) none of the mentioned

4. The registers that store the keyboard and display modes and operations programmed by CPU are CO1-U

   (a) I/O control and data buffers (b) Control and timing registers

   (c) Return buffers (d) Display address registers

5. _____are pre built circuit boards that fit on top of Android. CO1-U

   (a) Sensor (b) data types (c) bread board (d) shields

PART – B (5 x 3= 15 Marks)

6. How single stepping can be done in 8086? CO1- U

7. Write a program that carry out the following binary operation using 8086 instruction. CO2 -App
   W = X+Y+24-Z

8. Develop an ALP to perform multiplication of 2 number using 8051. CO2 -App

9. Infer on Key bouncing. CO1-U

10. Calculate the pulse rate using Arduino. CO4- App

PART – C (5 x 16= 80 Marks)

11.	(a)	Draw the pin diagram of 8086 Microprocessor and explain its individual pin functionality.	CO1 U	(16)
		Or		
	(b)	Draw the maximum mode configuration of 8086 and explain the various devices connected in it.	CO1 U	(16)
12.	(a)	Define Addressing modes. What are the different addressing modes of 8086 microprocessor? Explain each addressing mode with examples?	CO1 U	(16)
		Or		
	(b)	Explain arithmetic and logical instructions in 8086 with suitable examples.	CO1 U	(16)
13.	(a)	Write an assembly language program based on 8051 microcontroller instruction set to Perform four arithmetic operations on 8 bit data.	CO2- App	(16)
		Or		
	(b)	Implement an ALP in 8051 to arrange the given set of ‘n’ numbers in ascending and descending order.	CO2- App	(16)
14.	(a)	With neat circuit diagram explain how 8279 is interfaced with 8086 microprocessor	CO1 U	(16)
		Or		
	(b)	Draw the schematic diagram for interfacing a stepper motor and explain it.	CO1 U	(16)
15.	(a)	Develop a code to find the distance using ultrasonic sensor with Arduino UNO.	CO4-App	(16)
		Or		
	(b)	Develop a code to find the object using PIR sensor with Arduino UNO.	CO4-App	(16)