Reg. No. : | | | | | | | | | | | | |

Question Paper Code: U5303

B.E./B.Tech. DEGREE EXAMINATION, NOV 2024

Fifth Semester

Elecrical and Electronics Engineering

21UEE503 – MICROPROCESSOR AND MICROCONTROLLER PROGRAMMING

(Regulations 2021)

Duration: Three hours | Maximum: 100 Marks

Answer All Questions

PART A - (10 x 2 = 20 Marks)

1.	Describe the role of the Control Unit in the 8085 microprocessor and its significance in executing instructions.	CO1 U
2.	Write a short program in assembly language that uses direct addressing mode to load data from memory into a register.	CO1 U
3.	Define microcontroller and write any two real time applications of microcontroller.	CO2 U
4.	Explain the function of the Port 0 and Port 1 in the 8051 microcontroller.	CO2 U
5.	List the operating modes of 8255.	CO3 U
6.	Organize the function of Scan section in 8279 programmable keyboard/Display controller.	CO3 U
7.	Name any two types of memory found in the PIC 16F877 microcontroller and briefly describe their functions.	CO4 U
8.	Explain the basic purpose of the Capture/Compare/PWM module in the PIC 16F877 microcontroller.	CO4 U
9.	Define the purpose of the CPSR (Current Program Status Register) in the ARM architecture.	CO5 U
10.	Describe the role of the interrupt vector table in ARM-based systems and how it facilitates interrupt handling.	CO5 U

PART – B (5 x 16= 80 Marks)

11.	(a)	Summarize the architecture of 8085 microprocessor with its functional blocks.	CO1 U	(16)
		Or		
	(b)	Explain the timing diagram for memory read and IO write machine cycles with a neat diagram.	CO1 U	(16)
12.	(a)	Illustrate the architecture of Microcontroller 8051 with functional block diagram.	CO2 App	(16)
		Or		
	(b)	Illustrate the different Addressing Modes of 8051 Microcontroller with an examples.	CO2 App	(16)
13.	(a)	Explain the functional block diagram of 8255 PPI interface with neat sketches and analyze its modes of operation.	CO3 U	(16)
		Or		
	(b)	Draw and explain interfacing of 4x4 matrix keyboards with 8051 microcontroller. Write program to read switch.	CO3 U	(16)
14.	(a)	Analyze the architecture of PIC microcontroller.	CO4 Ana	(16)
		Or		
	(b)	Consider a case study in which the analog data is acquired from a temperature sensor. Then the date in converted into digital using ADC and the value is displayed on an LCD through the microcontroller. Draw circuit diagram from this application and explain its working with help of flow-chart.	CO4 Ana	(16)
15.	(a)	Explain the working of ARM processor with neat architecture.	CO5 U	(16)
		Or		
	(b)	Explain various operating models of ARM, what is coprocessor? and how it works. Explain the working of MPU and MMU related memory.	CO5 U	(16)