KONERU LAKSHMAIAH EDUCATION FOUNDATION
(Deemed to be University, Estd. u/s. 3 of UGC Act 1956)

B.Tech - Odd Sem : End Semester Exam
Academic Year:2020-2021

19EC2106 - Embedded Controllers

Set No: 2

Time:		**Max.Marks: 100**					
S.NO	Answer All Questions	Choice	Options	Marks	CO	CO BTL	COI BTL
1.	Elucidate the 8086 logical Instructions in detail with the help of Syntax and Example programs?	choice Q-2		10Marks	CO1	2	1
2.	Sketch the “I/O Read & Memory Write” Cycle Timing Diagram in Minimum Mode of 8086 with pins and define in detail?			10Marks	CO1	2	2
3.	Answer ALL Questions	choice Q-4		15Marks	CO1	2	2
3.A.	Develop an 8086 algorithm and Assembly Language Program to find the Ascending & Descending order number in an array of ten bytes with Comments.			10Marks	CO1	2	2
3.B.	Illustrate the following Signals in 8086 and write its direction (input or output): (i) READY (ii) M/IO’ (iii) RD’ (iv) LOCK’ (v) ALE			5Marks	CO1	2	2
4.	Answer ALL Questions			15Marks	CO1	2	2
4.A.	Describe the 8086-microprocessor addressing modes in detail with an example program.			10Marks	CO1	2	2
4.B.	List the Maximum & Minimum Mode Pins in 8086 processor and explain them in detail?			5Marks	CO1	2	2
5.	Indicate the IE & IP registers in 8051 with necessary functionality also mention the interrupts and interrupt Vector ROM location?	choice Q-6		10Marks	CO2	3	2
6.	To generate a square wave using an 8051 microcontroller with an ON time of 5ms and on OFF time of 10ms on all pins of port1. Assume an XTAL of 11.0592MHz.			10Marks	CO1	2	2
7.	Answer ALL Questions	choice Q-8		15Marks	CO2	3	3
7.A.	Bring out the functionality of the TMOD register in 8051. Also express the significance of all the Modes of the timer in detail. Write the necessary Steps to be involved for writing program in Mode 1 in 8051 timers.			10Marks	CO2	3	3
7.B.	A switch connected to pin P3.2. When a switch is pressed, the corresponding line goes low. Write a program to light all LEDs connected to port 0, if the switch is pressed.			5Marks	CO2	3	3
8.	Answer ALL Questions			15Marks	CO2	3	3
8.A.	Bring out the functionality of the TMOD register in 8051. Also express the significance of all the Modes of the timer in detail. Write the necessary Steps to be involved for writing program in Mode 1 in 8051 timers.			10Marks	CO2	3	3

8.B.	How many bit addressable memory locations are in 8051 microcontroller's RAM? Explain various banks of 8051 microcontroller with its address range.			5Marks	CO2	3	3
9.	List the steps in detail for scanning columns by grounding rows when interfacing a keypad to 8051 and draw the flowchart for keyboard interfacing in detail?	choice Q-10		10Marks	CO3	4	2
10.	Explicate the memory organization and the features of Timer-0 of PIC 18F?			10Marks	CO3	4	2
11.	Answer ALL Questions	choice Q-12		15Marks	CO3	4	4
11.A.	A Digital to Analog Converter DAC 0808 is interfaced with 8051 Controller. Write a program to generate a triangular wave. Sketch the interfacing Diagram neatly.			10Marks	CO3	4	4
11.B.	Elucidate the process for doubling the baud rate in serial communication of 8051 with all necessary steps?			5Marks	CO3	4	3
12.	Answer ALL Questions			15Marks	CO3	4	4
12.A.	Write a program that continuously gets 8-bit data from Port-0 and sends it to Port-1 & create a square wave of 200µs period on pin P2.1. Use timer 0 to create the square wave. Assume that XTAL=11.0592MHz.			10Marks	CO3	4	4
12.B.	Classify the various pin description and address range of LCD with the help of Symbols in detail.			5Marks	CO3	4	4
13.	How is a real-time operating system different from general purpose operating system? Compare the general-purpose OS with RTOS?	choice Q-14		10Marks	CO4	2	1
14.	Draw and describe the STM 32 system architecture and list out any 5 features of STM32?			10Marks	CO4	2	1
15.	Answer ALL Questions	choice Q-16		15Marks	CO4	2	2
15.A.	Sketch and discuss the basic Harvard Architecture for the Cortex-M3 profiling controller?			10Marks	CO4	2	2
15.B.	Enumerate the salient features of Cortex – M3 profile in detail.			5Marks	CO4	2	2
16.	Answer ALL Questions			15Marks	CO4	2	2
16.A.	Specify and elaborate the functions of user peripherals on the existing STM32 variants. How do you discriminate various low power modes of STM32?			10Marks	CO4	2	2
16.B.	Briefly discuss about the purpose of watchdog timer?			5Marks	CO4	2	2

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