UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, May 2022

Course: Micro Processor & Embedded systems **Semester: VI**
Program: B.Tech-CSE-LLB-SPZ-CL/IPR-VI **Time : 03 hrs.**
Course Code: CSEG-3006 **Max. Marks: 100**

Instructions:

SECTION A
(5Qx4M=20Marks)

S. No.	*Attempt all the questions*	Marks	CO
Q 1	List down the interrupts in 8085 microprocessor. Present the classification of these interrupts in brief.	4	CO2
Q 2	a) Write the truth table of the full adder and Boolean expressions. b) Convert the following number to target base number: i) $(110010100001.000010)_2 = (?)_{16}$ ii) $(127.7)_8 = (?)_{10}$	4	CO1
Q 3	What is the purpose and use of flag registers in 8085 processor and 8051 controllers? Explain with an example.	4	CO1

Q 4	Find the size of the delay in following program, if the crystal frequency is 11.0592MHz.
	
	DELAY: MOV R3,#250 (1 machine cycle)
	HERE: NOP (1 machine cycle)
	        NOP (1 machine cycle)
	        NOP (1 machine cycle)
	        NOP (1 machine cycle)
	        DJNZ R3,HERE (2 machine cycle)
	        RET (2 machine cycle)
		4	CO3

Q 5	A switch is connected to pin P1.7. Write a program to check the status of the switch and make the following decision. (a) If SW = 0, send "0" to P2 (b) If SW = 1, send "1" to P2	4	CO3

SECTION B
(4Qx10M= 40 Marks)

	Attempt all the questions		CO
Q 6	Explain in detail the modes of operation of Timer unit in 8051 Microcontroller.	10	CO4

Q 7	Explain the preemptive and non-preemptive kernels and scheduling with examples. OR Detail the different addressing modes of 8085 microprocessor with examples.	10	CO4
Q 8	a) Write down the program when Port 0 is configured first as an input port by writing 1's to it, and then data is received from that port and sent to P1. b) Write the format of assembly language program and flow chart to develop the code in assembly language programming.	5+5	CO3
Q 9	Assume that RAM locations 30 – 34H have the following values. Write a program to find the sum of the values. At the end of the program, register A should contain the low byte and R7 the high byte. 30 = (7D) 31 = (EB) 32 = (C5) 33 = (5B) 34 = (30)	10	CO2

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SECTION-C
(2Qx20M=40 Marks)

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	Attempt any two of the followings		CO
Q 10	(a) Draw the timing instruction MVI A, 20 H and explain the function of each machine cycle. (b) Draw and explain the architecture of 8051 microcontroller.	10+10	CO1
Q 11	(a) Explain the Real time operating system. Also. Elaborate the various scheduling algorithm used in RTOS. (b) Write the assembly language program for sort array in ascending order.	10+10	CO4
Q 12	Illustrate the interfacing of following display devices to 8051 microcontroller, draw the diagram and write the logic. 1. Light Emitting Diodes 2. Liquid Crystal Displays	20	CO3