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Enrolment No:			
UNIVERSITY OF PETROLEUM AND ENERGY STUDIES End Semester Examination, May 2022			
Course: Micro Processor & Embedded systems Program: B.Tech CSE-AI&ML, BIG DATA, BT, DEVOPS, IOT&SC, CSF, OGI, OS&OS Course Code: CSEG-3018		Semester: VI Time : 03 hrs. Max. Marks: 100	
Instructions:			
SECTION A (5Qx4M=20Marks)			
S. No.	<i>Attempt all the questions</i>	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	CO3
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	CO4
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)			
	<i>Attempt all the questions</i>		CO
Q 6	What are the different types of the flip-flops? Write the detailed working of S-R flip-flop using NAND and NOR with truth table, characteristic table and excitation equation.	10	CO4

Q 7	<p>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.</p> <p>b) Write the format of assembly language program and flow chart to develop the code in assembly language programming.</p>	5+5	CO4
Q 8	<p>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.</p> <p>30 = (7D) 31 = (EB) 32 = (C5) 33 = (5B) 34 = (30)</p>	10	CO3
Q 9	<p>Explain the preemptive and non-preemptive kernels and scheduling with examples.</p> <p style="text-align: center;">OR</p> <p>Detail the different addressing modes of 8085 microprocessor with examples.</p>	10	CO5
<p>SECTION-C (2Qx20M=40 Marks)</p>			
	<i>Attempt any one in Q11 and Q12</i>		CO
Q 10	<p>(a) Draw the timing instruction MVI A, 20 H and explain the function of each machine cycle.</p> <p>(b) Draw and explain the architecture of 8051 microcontroller.</p>	10+10	CO4
Q 11	<p>(a) Describe the challenges and future trends in embedded system development.</p> <p>(b) Write the assembly language program for sort array in ascending order in microprocessor.</p>	10+10	CO3
Q 12	<p>Illustrate the interfacing of following display devices to 8051 microcontroller, draw the diagram and write the logic.</p> <ol style="list-style-type: none"> 1. Light Emitting Diodes 2. Liquid Crystal Displays 	20	CO4