Name: **Enrolment No:**	UPES

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, May 2021

Programme Name: B. Tech- CSE Cyber law-LLB **Semester : VI**
Course Name : Microprocessor & Embedded Systems **Time : 03 hrs**
Course Code : CSEG 3006 **Max. Marks: 100**
Nos. of page(s) : 02
Instructions: Assume any data in programming, if required

SECTION-A (6 x 5 = 30 Marks)

S. No.	Attempt ***all*** the questions	**Marks**	**CO**
Q.1	Write an assembly/embedded 'C' program for the Eight LED blinking in alternate way connected to port P1 of 8051 microcontroller.	**5**	**CO1**
Q.2	Write the role of the followings pins of 8085 microprocessor ALE INTR TRAP SOD CLK(OUT)	**5**	**CO2**
Q.3	Explain the foreground and background systems. Detail the role of different task states and their functionality with respect to RTS. ***OR*** Write the assembly language program of 8085 microprocessor for the addition and subtraction of two 8- bit numbers, Assume the numbers	**3 + 2**	**CO5**
Q.4	Illustrate the followings for 8085 processor with examples? (a) Hardware and software interrupts (b) Maskable and non-Maskable interrupts	**5**	**CO1**
Q.5	Define Embedded system. Discuss the challenges and future trends in embedded system	**5**	**CO5**
Q.6	What is the purpose and use of flag registers in 8085 processor and 8051 controllers? Explain with an example	**5**	**CO2**

SECTION-B (5 x 10 = 50 Marks)

	Attempt ***all*** the questions		
Q.7	Write the format of assembly language program and flow chart to develop the code in assembly language programming	**10**	**CO1**
Q.8	Write the C code for interfacing 7-segment display with 8051 microcontroller. The count of 0 to 9 should be displayed with a delay of 1 second. Connect to switch to P1.1 which when pressed should reset the count and start from 0 again. Write the algorithm(or draw the flowchart) and draw the schematic	**10**	**CO4**
Q.9	Detail the different types of instructions grouped for 8085 microprocessor. Compare the following instructions based on their execution, T states, machine cycle and examples (a) DAA and ADD (b) PUSH and POP	**10**	**CO3**

Q.10	Explain the preemptive and non-preemptive kernels and scheduling with examples. ***OR*** Detail the different addressing modes of 8051 microcontroller with examples.	**10**	**CO5**
Q.11	(a) Write an assembly language program for 8085 microprocessor to find the 1's and 2's complement of a number. Store the result in memory address 2000H. (b) Explain the working of address demultiplexing and control circuit for 8085 with logic diagram	**5 + 5**	**CO3**
SECTION-C (1 x 20 = 20 Marks) **Attempt any *one* of the followings**			
Q.12	**(a)** Draw the timing instruction MVI 35H and explain the function of each machine cycle. **(b)** Two numbers 95H and 05H are at 2501 H and 2502 H memory locations and their results are stored in 2503H and 2504 H. Write the ALPs for 8085 microprocessor/8051 microprocessor to support the multiplication operation of ALU. Also draw the flowchart and verify your answers.	**10** **10**	**CO4**
	OR		
Q.12	(a) Highlight the importance of CGRAM, DDRAM memories while interfacing LCD with 8051. Also comment on the usage and working of RS and E pin of LCD. Interface the LCD to 8051 microcontroller and write the program to display on 16 x 2 LCD "I LOVE UPES" (b) Detail the completed internal RAM memory architecture of 8051 with complete description of register banks, bit Addressable RAM allocation and SFR.	**10 +10**	**CO4**