Name:

**Enrolment No:** 



## UNIVERSITY OF PETROLEUM AND ENERGY STUDIES **End Semester Examination, December 2022**

**Course: Microprocessor and Embedded system** 

**Program: B.Tech-CSE-All branches** 

Course Code: ECEG 3052

**Semester: V** Time: 03 hrs.

Max. Marks: 100

Instructions: Explain in short. (60-70 words)  SECTION A  (5Qx4M=20Marks)				
Q 1	List various type of memory subsystem. Write the role of the flag registers in 8085 microprocessor/8051 microcontroller with examples.	4	CO1	
Q 2	Define Embedded System. Discuss the challenges and future trends in embedded system.	4	CO2	
Q 3	What are the different states of the task? Draw the state transition diagram of task.	4	CO3	
Q 4	Interface the 8051 microcontrollers with 7 segment display device and write the assembly/embedded 'C' code to display the numbers 0 to 9.	4	CO1	
Q 5	What is the role of decoder (3x8) in digital and microprocessor applications? Explain its functionality with suitable logic diagram and truth table.	4	CO4	
	SECTION B			
	(4Qx10M=40 Marks)			
Instruc	tion: Write brief notes. (100-150 words)			
Q 6	Investigate the working of common bus system in 8085. Justify your answer with proper example and state the truth table of Control Lines	10	CO1	
Q 7	Write an assembly language code for adding element into link list.  OR  Interface the 8051 microcontroller to 8 LEDs and write the Embedded 'C' code to support the functionality of the system.	10	CO4	
Q 8	Deliberate the different scheduling techniques used for kernel interaction.	10	CO2	
Q 9	Design the JK Flip-flop using logic gates. Devise the with truth table, characteristic table and excitation equation of the same and deduce the Boolean expression of the Q and Q(bar)  OR  Design the Mode-12 Up synchronous Counter using any flip flop. Design the simplified Boolean expression of the same.	10	CO3	

SECTION-C (2Q x 20M = 40 Marks) Instruction: Write long answer. (Up to 350 words while explaining). Attempt any part of question no. 10 as there is an option "a" OR "b". There is no choice for question no.11.			
Q 10	<ul> <li>(a) What is the significance of T-state, Machine cycle and instruction cycle for 8085 microprocessor? Draw the timing diagram of MVI, 35H instruction for 8085 microprocessor and detail its functionality OR</li> <li>(b) Draw the machine cycle for 8085 for opcode fetch, memory read, memory write, I/O read, I/O write independently and write the truth table to support the timing diagram.</li> </ul>	20	CO1
Q 11	Interface the 8051 microcontrollers with LCD (16 x 2). Detail the operation and Write the embedded 'C' / Assembly program to display "I LOVE UPES".	20	CO4