

<b>Name:</b>	 <b>UPES</b>
<b>Enrolment No:</b>	

**UNIVERSITY OF PETROLEUM AND ENERGY STUDIES**  
**End Semester Examination, DEC 2020**

<b>Program Name: B. Tech EL</b>	<b>Semester: V</b>
<b>Course Name: Microprocessor and Microcontroller</b>	<b>Submission Date</b>
<b>Course Code: ECEG 3030</b>	<b>Max. Marks: 100</b>
<b>Nos. of page(s): 2</b>	

**For Section A type your Answer in the typing area provided.**  
**Instructions to Attempt section A and section B**  
All the answers should be in handwritten mode (No digital typing is allowed)  
Write all the answers on the A-4 size sheet, Scan it and upload the in the given time.

**SECTION A (5X6): Attempt all the questions**

Q. No.	Question	Marks	CO
Q 1	What do you understand by Micro processor and Micro controller?	5	CO1
Q 2	Define the followings of 8085 processor : 2.1 Hardware and software interrupts 2.2 Maskable and non-Maskable interrupts	5	CO2
Q 3	What is the purpose and use of flag registers in 8085 processor and 8051 controllers? Explain with an example?	5	CO1
Q4	Write 8085 assembly language program to subtract two 8-bit numbers C9H and 97H using only two instructions. Mention the result and status of flags.	5	CO1
Q5	Choose correct option: 5.1 What is the content of A at the end of this program? MVI A, 06H RLC MOV B, A RLC RLC ADD B  5.2 Number of banks and number of registers in each bank of 8051 controller respectively are? a. 4 and 32 b. 4 and 4 c. 4 and 16 d. 4 and 8  5.3 The size of internal RAM memory of the 8051 is a. 128 bits b. 128KB c. 128MB d. 128 bytes	5	CO1

Q6	Fill in the Blank with correct answer 6.1 For an 8K byte memory if the address of last location is FFFFH then the starting address is _____. 6.2 Memory chips are required to configure a (4KX8) memory size using (256 x 8) RAM chip are equal to _____.	5	CO1
<b>SECTION B (5X10) : Attempt all the questions</b>			
Q 7	Write 8085 assembly program along with algorithm to add two numbers stored in memory locations 7500H and 7501H. Check for carry, if carry is 0 then store 01 in register C or else store 0. Store the result and carry in 7200H and 7201H.	10	CO2
Q8	Analyze the multiplexing in 8085 and how to de-multiplex them for fetching memory location and read/write data. Draw the block diagram for ALE signal.	10	CO3
Q9	Draw the timing diagram of the following instruction: a. MOV A, M b. MVI A,45h	10	CO2
Q10	Draw the architecture of 8051 microcontroller and explain the function of each block. Comment on why and when crystal oscillator should be connected externally.	10	CO1
Q11	Illustrate the features of Bit addressable memory of 8051. Discuss the PSW as a bit addressable register for 8051.	10	CO2
<b>SECTION-C : (1X20)</b>			
Q12	Design a digital system using 8051 micro controller for LED blinking sequentially (8 LEDs) and number (0-9) display on 7 segment display. Draw the connected network for the interfacing of LEDs and 7 segment displays. Mention the programming C code for the interfacing.	20	CO3