

Name:

Enrolment No:



UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

End Semester Examination, May 2019

Course: Microprocessor and Embedded Systems

Program: B.Tech(CSE)-All IBM Programs

Course Code: CSEG 372

Semester: VI

Time 03 hrs.

Max. Marks: 100

Instructions: Answer the following questions

SECTION A

S. No.		Marks	CO
Q1	Discuss the different types of addressing modes available in 8051.	5	CO2
Q2	What is an embedded system? What are the working elements of an embedded system?	5	CO1
Q3	What is Cross-Compilation? List the files that are generated upon cross-compilation	5	CO3
Q4	Explain the structure of ARM processor Program Status Registers	5	CO5

SECTION B

Q5	Explain the different types of conditional JUMP and CALL instructions in 8051 with an example	10	CO4
Q6	Write an embedded C program to display UPES-CSE message on the seven segment display device.	10	CO5
Q7	Consider the memory locations 2500h and 25001h contains 34h and 74h respectively, find the output of the following program; MVI C,00H; LHLD 2500H; MOV A,C;ADD H; DAA;JNC NEXT; INR C; NEXT: STA25002; MOV A,C; STA 2503;HLT	10	CO3
Q8	Explain the internal architecture of 8085 microprocessor with neat diagram OR Write 8051 Assembly level program for interfacing a stepper motor with 8051 changing speed and direction of the motor.	10	CO4

SECTION-C

Q9	a). Explain the different types of data movement instructions in 8051 with their syntax and example. (10 Marks)	20	CO3
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	b). Describe the sequence of event that may occur during the different T state in the opcode Fetch machine cycle of 8085? (10 Marks)		
Q10	<p>c). Write an 8085 assembly level language program to find the average of N 8-bit numbers and store the result in a memory location.</p> <p style="text-align: center;">OR</p> <p>What is RTOS? explain the different types of RTOS with an example (10 Marks)</p> <p>d). Draw a neat labeled diagram of the phases of the EDLC and explain any two phases in detail.</p> <p style="text-align: center;">OR</p> <p>Write an algorithm and 8051 assembly level program to rotate the value FEh in LED from left to right 2 times and right to left 4 times. (10 Marks)</p>	20	CO3, CO5

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SECTION A

S. No.	Question	Marks	CO
Q1	Discuss the various special function registers available in 8051.	5	CO3
Q2	Give classification of embedded systems and Explain any two applications of embedded systems	5	CO1
Q3	Explain the embedded Operating system with respect to i) Tasks and ii) Task States	5	CO4
Q4	Explain the different types of 8085 microprocessor logical instructions with an example	5	CO2

SECTION B

Q5	Draw and explain the pin diagram of 8051. List some of the important features of 8051.	10	CO4
Q6	Explain the block diagram to build process for embedded system	10	CO3
Q7	Explain the different types of ARM processor register sets.	10	CO4
Q8	Write an embedded C program to rotate the stepper motor to rotate clockwise 4 rotations and anticlockwise 3 rotations. OR Write an 8085 assembly level language program to simulate binary search algorithm.	10	CO3

SECTION-C

Q9	a). Discuss in detail the different types of register banks available in 8051. (10 Marks) b). How do the instructions of 8085 is classified based on their function and word length? Give an example? (10 Marks)	20	CO5
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Q10	<p>Find the out put of the following program and write an algorithm also.</p> <pre>ORG 00H ; MOV R0, #33H ; MOV A, R0; SETB PSW.3 ; SETB PSW.4 ; MOV R0, A; END</pre> <p style="text-align: center;">OR</p> <p>Write an embedded C program to display UPES-CSE message on the seven segment display device. (10 Marks)</p> <p>d). Explain the internal architecture of 8051 microcontrollers with neat diagram</p> <p style="text-align: center;">OR</p> <p>Explain the following instructions with an example DAD, DAA, CALL, RETURN (10 Marks)</p>	20	CO4, CO3
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