Name: **Enrolment No:**	UPES

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, December 2018

Programme Name: B.Tech – CSE+MC, ECRA, IoT, OGI **Semester : V**
Course Name : Microprocessor & Embedded System **Time : 03 hrs.**
Course Code : CSEG 372 **Max. Marks: 100**
Nos. of page(s) : 1
Instructions: All Sections are compulsory to attempt.

SECTION A

S. No.		Marks	CO
Q 1	Differentiate RISC and CISC processor with example	**4M**	**CO1**
Q 2	What is Real time Operating System? Explain four basic characteristic of RTOS	**4M**	**CO4**
Q 3	What are the SFR used in Serial port? Explain the usage of PCON	**4M**	**CO2**
Q 4	Draw the Architecture of the Microprocessor with all the buses for each signals	**4M**	**CO3**
Q 5	Why protocols are required embedded systems? Write any two protocols that you know	**4M**	**CO1**
	SECTION B		
Q 6	Write a program for generating external interrupt 0 and 1 in 8051	**10M**	**CO4**
Q 7	Justify why Internal RAM and External ROM are interfaced in Microcontroller (8051)	**10M**	**CO2**
Q 8	Memorize the complete ARM architecture, and relate with Local, AHB, and VPB buses	**10M**	**CO3**
Q 9	Justify why MIMD and SIMD in the Shark DSP OR Write 8085 program for 16-bit modulo division	**10M**	**CO1**
	SECTION-C		
Q 10	Analyze the following concepts with neat diagrams with real world examples A. Message Queue C. Deadlock and starvation B. Semaphore & types D. OS States	**5M + 5M + 5M + 5M**	**CO5**
Q 11	Write a program to subtract a 16-bit number stored at locations 51H-52H from 55H-56H and store the result in locations 40H and 41H. Assume that the least significant byte of data or the result is stored in low address. If the result is positive, then store 00H, else store 01H in 42H. OR	**20M**	**CO2**

	Program to transmit “UPES-SCS” at a baud rate of 9600 using Serial SFR’s?		

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SECTION A

S. No.		Marks	CO
Q 1	Discuss various challenges in designing the embedded system	**4M**	**CO1**
Q 2	Explain special purpose registers used in 8085	**4M**	**CO2**
Q 3	Explain timer 0 and timer 1 in TMOD with diagram	**4M**	**CO3**
Q 4	Explain the buses used to connect the core with other peripherals in ARM	**4M**	**CO4**
Q 5	Write Six points differentiating the RTOS and RTS	**4M**	**CO5**
	SECTION B		
Q 6	What is DSP? Justify why the pipeline concept in the SHARC	**10M**	**CO4**
Q 7	Draw and explain the architecture of 8085 microprocessor	**10M**	**CO3**
Q 8	Why ARM architecture used widely in Embedded System with the use of shadow registers in ARM	**10M**	**CO5**
Q 9	Embedded Systems talk to the outside world using certain peripherals, distinguish at least 5 of them in details OR Differentiate Harvard Architecture and Von Neumann Architecture	**10M**	**CO4**
	SECTION-C		
Q 10	Critically analyze the role of priority and non priority scheduling algorithms in Real time Operating Systems	**20M**	**CO5**
Q 11	Find the square of the given numbers from memory location 6100H and store the result from memory location 7000H? OR Write an 8051 program for Timer interrupt 0 and 1	**20M**	**CO2**