Name: Enrolment No:	UPES UNIVERSITY WITH A PURPOSE

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, May 2019

Course: Embedded Technology for IOT
Semester: 6th
Program: B.tech EE(IOT based Instrumentation)
Time 03 hrs.
Course Code: ELEG 383 **Max. Marks: 100**

Instructions:

SECTION A

S. No.		Marks	CO
Q 1	What is binary semaphore or mutex?	5	CO1
Q2	Explain graphical user interface with the help of an example	5	CO2
Q3	Explain the functions of a device driver	5	CO3
Q4	Why are conventional processors not suitable for DSP?	5	CO3
	SECTION B		
Q 5	Explain with the help of a block diagram the high performance PCI bus architecture for an embedded system for IOT	10	CO4
Q6	Explain the working of R-2R ladder Digital to analog converter . what will be the analog output for the digital inputs 0000 and 1111?	10	CO3
Q7	What are the roles of software engineers? What are the different evaluating specification techniques in the requirement analysis of software engineering?	10	CO2
Q8	Develop a backend testing system via internet for an embedded system based on IOT	10	CO4
	SECTION-C		
Q 9(a)	Design a Flash type Analog to digital converter to be used for embedded system with the following specifications: V(in)=0-5V, encoder bits =3, resolution =1 v	10	CO3
b)	Design a delta-sigma Analog to digital converter with a specification of your choice	10	CO3
Q10	Design a Real time operating system with the following specifications: 4 sensors, temperature, humidity, fire and gas , three switches , three motors and pressure gauges for measuring the pressure. With the threshold of sensing values of your choice the switches and motors are to be activated. Add a datagram to this for sending and receiving data packet. Write the code for the entire system.	20	CO2,CO4

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SECTION A

S. No.		Marks	CO
Q 1	What is Counting semaphore?	5	CO1
Q2	Explain command line interfaces with the help of an example	5	CO2
Q3	What is a board support package?	5	CO3
Q4	Compare Data processing versus signal processing	5	CO3
	SECTION B		
Q 5	With the help of a flow chart explain the techniques for inputting a block of data for an embedded system with IOT.	10	CO4
Q6	Explain the working of a binary weighted resistor Digital to Analog converter. What will be the output for inputs 0000 and 1111?	10	CO3
Q7	What are the specification principles in the requirement analysis of software engineering?What are the characteristics of software engineers?	10	CO2
Q8	Explain the testing challenges of internet based embedded application.	10	CO4
	SECTION-C		
Q 9(a)	Design a Flash type Analog to digital converter to be used for embedded system with the following specifications: V(in)=0-5 V, encoder bits =3, resolution =1 v	10	CO3

b)	Design a dual slope Analog to digital converter with a specification of your choice	**10**	**CO3**
Q10	Design a Real time operating system with the following specifications: 4 sensors, temperature, humidity, fire and gas , three switches , three motors and pressure gauges for measuring the pressure. With the threshold of sensing values of your choice the switches and motors are to be activated. Add a datagram to this for sending and receiving data packet. Write the code for the entire system.	**20**	**CO2,CO4**