Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

SEVENTH SEMESTER B.TECH DEGREE EXAMINATION(R&S), DECEMBER 2019

Course Code: IT401

Course Name: Embedded Systems

Max. Marks: 100 Duration: 3 Hours

PART A

Answer any two full questions, each carries 15 marks.

			Marks
1	a)	Explain internal structure of an MCU.	(8)
	b)	Explain some embedded systems used in biomedical applications.	(7)
2	a)	What do you mean by low power design in Embedded systems	(4)
	b)	Explain any four type of I/O device used in embedded systems.	(4)
	c)	Why Brain Machine Interface is called an embedded system	(7)
3	a)	"An embedded Processor is used at the heart of the system design." Justify.	(2)
	b)	What are the advantages of a serial interface over parallel interface?	(6)
	c)	How does CAN work ? Explain its protocol.	(7)

PART B

Answer any two full questions, each carries 15 marks.

4	a)	Discus about GPIO of Raspberry Pi	(4)
	b)	Linux is a great match for Raspberry Pi. Why?	(3)
	c)	Explain the characteristics of embedded computing applications.	(8)
5	a)	Explain following part of Raspberry Pi. i) Hardware Interface ii) Pins and headers	(8)
	b)	Discuss the hardware and software components required for designing GPS moving map.	(7)
6	a)	Interface a Switch & LED to Raspberry Pi to glow the LED, if the switch is pressed, otherwise turn it OFF with the help of a GPIO program.	(8)
	b)	Explain about embedded systems design methodologies	(7)

PART C

Answer any two full questions, each carries 20 marks.

7	a)	Discuss any 8 mathematical functions supported by Arduino sketch with suitable example	(10)

	b)	Explain Inter Process Communication with example?	(10)
8	a)	Write a sketch to read an RFID tag using arduino?	(10)
	b)	Discuss some qualities of RTOS	(5)
	c)	Do embedded systems need an operating system?	(5)
9	a)	What do you mean by open source hardware?	(2)
	b)	Develop an Arduino project with social relevance. Write steps, Arduino sketch, components and its specific use.	(8)
	c)	Compare 3 stage pipelining and 5 stage pipelining	(5)
	d)	What is the use of cache for any processor	(5)

****