

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER-VI (NEW) EXAMINATION – WINTER 2024

Subject Code:3160311

Date:28-11-2024

Subject Name:Embedded System for Medical Device

Time:02:30 PM TO 05:00 PM

Total Marks:70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

		Marks
Q.1	(a) Define Embedded system. Explain different examples of embedded system.	03
	(b) Explain the characteristics of embedded system.	04
	(c) Explain Classification of embedded systems.	07
Q.2	(a) Explain Elements of Embedded System.	03
	(b) Explain Classification of Program Memory and Working Memory.	04
	(c) Explain PCB of an OS. Give the difference between PCB and TCB.	07
	OR	
	(c) Explain input-output operations of OS and RTOS.	07
Q.3	(a) Explain the difference between function, ISR and Task.	03
	(b) Explain Tasking and Scheduling Mechanism.	04
	(c) Explain features of Raspberry pi (for any one model of Rpi).	07
	OR	
Q.3	(a) Enlist different Cooperative scheduling models of OS.	03
	(b) Explain Round - Robin.	04
	(c) Write a program to interface Switch and Led with Raspberry Pi.	07
Q.4	(a) Explain Data types and variables in python programming.	03
	(b) Explain Interrupt Routines in an RTOS environment.	04
	(c) Explain the block diagram for temperature controller using Raspberry pi.	07
	OR	
Q.4	(a) Explain Exception handling in Raspberry pi programming.	03
	(b) Explain the difference between ARM vs x86.	04
	(c) Explain the ARM Cortex -A53 Architecture.	07
Q.5	(a) Explain different Image read/write operation in Raspberry pi programming.	03
	(b) Explain video streaming on the Raspberry pi.	04
	(c) Write a program to interface ADC using Raspberry Pi.	07
	OR	
Q.5	(a) Explain different Arithmetic operations in image processing.	03
	(b) Explain matplotlib to visualize images.	04
	(c) Explain working of Pi camera module.	07
