Enrolment No./Seat No_____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER– VI EXAMINATION – SUMMER 2026

Subject Code:3160311 Date:26-05-2026

Subject Name:Embedded System for Medical Device

Time:10:30 AM TO 01:00 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. What is the major block of the Embedded system?	**03**
	(b)	Mention the application areas of an Embedded System.	**04**
	(c)	List out the characteristics of an Embedded System. Explain each in detail.	**07**
Q.2	**(a)**	What should be the goal of the operating system?	**03**
	(b)	List the layer between application and hardware.	**04**
	(c)	List out the top-down structure layers for the system. Explain each in detail.	**07**
		OR	
	(c)	Explain the process management in detail.	**07**
Q.3	**(a)**	What are the different modes of OS function? Mention their functions.	**03**
	(b)	Explain the role of the timer function in OS.	**04**
	(c)	Explain the basic design using an RTOS.	**07**
		OR	
Q.3	**(a)**	What is Application-Specific Integrated Circuit (ASIC)? Explain the role of ASIC in Embedded System design?	**03**
	(b)	What is the difference between RISC and CISC processors?	**04**
	(c)	What are the different types of memories used for Program storage in Embedded System Design?	**07**
Q.4	**(a)**	List out the supporting operating system with Pi.	**03**
	(b)	Explain the Image read/write operation with the help of an example.	**04**
	(c)	Write a program to measure distance using an ultrasonic sensor with Pi and display it on a command prompt.	**07**
		OR	
Q.4	**(a)**	Mention the board specification of Pi.	**03**
	(b)	List out the data types. Explain each data type with the help of an example.	**04**
	(c)	Explain the controlling statement with the help of an example.	**07**
Q.5	**(a)**	Enlist the advanced raspberry pi configurations.	**03**
	(b)	List out the application of Raspberry pi.	**04**
	(c)	Write a program to interface the Temperature sensor with Raspberry Pi.	**07**
		OR	
Q.5	**(a)**	What is Embedded Firmware? What are the different approaches available for Embedded Firmware development?	**03**
	(b)	List out the basic operation on Images.	**04**
	(c)	Explain the steps of interfacing of Pi camera module for capturing the image.	**07**

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