

Seat No.:	Q. Paper Code: FTC-A-013			SET	A		
	Fabtech Technical Campus, College of Engineering & Research, Sangola						
	(An Autonomous Institute)						
	Electronics and Telecommunication Engineering						
	Academic Year: -2025-26, Semester-I						
Embedded Systems and Hardware for IoT (25PET11173)							
Regular End Semester Examination Winter 2025-26 [Dec./Jan]							
Class:	F. Y. M. Tech.	Day & Date:	Monday, 05/01/2026				
Duration:	03 Hrs.	Max. Marks:	60 Marks				
Time:	11:00 AM TO 02:00 PM						
Instructions:							
1) All Questions are compulsory. 2) Figures to the right indicate full marks. 3) Draw neat diagram wherever necessary. 4) Make suitable assumptions if necessary and state it clearly. 5) Use of non-programmable calculator is allowed.							
Q. No.	Questions				Marks	CO	BL
Q. 1	Attempt any two of the following				12		
1	What are the applications of an embedded system? Differentiate between timers and counters.				6	1	3
2	List the peripherals available in microcontroller & different package types available for microcontroller?				6	1	2,3
3	Write note on Hardware and software co-design of Embedded system.				6	1	2,3
Q. 2	Attempt any two of the following				12		
1	Explain ARM architecture in details.				6	2	4,6
2	Write short note on Communication interfaces (UART,SPI, I2C).				6	2	4
3	Write a note on interrupt servicing mechanism.				6	2	3
Q. 3	Attempt any two of the following				12		
1	Write a short note on assembly language programming.				6	3	2
2	Write a short note on RTOS.				6	3	3,4
3	Write a note on the importance of debugging tools in embedded systems development.				6	3	4
Q. 4	Attempt any two of the following				12		

1	Write a note on wireless communication protocol.(Bluetooth,Zigbee)	6	4	3
2	Write a note on Hardware security in IoT systems.	6	4	3
3	Write a note on Sensors and actuators for IoT.	6	4	4
Q. 5	Attempt any two of the following	12		
1	Describe about Application Layer Protocols: (a) CoAP (b) MQTT.	6	5	4
2	Discuss in detail the use of embedded computing in the design of IoT Systems. (i) Analyze in detail an exemplary device: Raspberry Pi. (ii) Explain in detail the Raspberry Pi interfaces.	6	5	3
3	Write a note on Cloud connectivity and edge computing.	6	5	4