TED (21) 6201B
(Revision - 2021)

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DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/MANAGEMENT/ COMMERCIAL PRACTICE, APRIL - 2026

EMBEDDED SYSTEMS

[Maximum marks: 75] [Time: 3 Hours]

PART A

I. Answer all the following questions in one word or one sentence. Each question carries 1 mark.

(9 x 1 = 9 Marks)

		Module outcome	Cognitive level
1	List any two examples of embedded systems.	M1.01	R
2	Give two examples for on-board communication interfaces in a common embedded system hardware.	M1.06	R
3	What are actuators?	M1.05	U
4	List any two AVR family microcontrollers.	M2.01	R
5	What is TIFR register?	M2.04	R
6	Expand SPI and I2C.	M3.07	R
7	Name any Register associated with ADC interfacing with AVR.	M3.06	R
8	Write the expansion of RTOS.	M4.02	R
9	Define task in an embedded system.	M4.01	R

PART B

II. Answer any eight questions from the following. Each question carries 3 marks.

(8 x 3 = 24 Marks)

		Module outcome	Cognitive level
1	Describe about memory types used in embedded systems.	M1.05	U
2	Explain the software components in an embedded system.	M1.03	U
3	What are the two types of Communication interface? Give examples for one each.	M1.06	R
4	Explain registers associated with AVR ports.	M2.03	R
5	Explain different data types in AVR C-program.	M2.05	R
6	Write an AVR embedded C program to read the status of a switch and display the status into an LED, Make PORTB as output port and PORT C as input port.	M3.02	A
7	Write embedded C program for interfacing 7 sement display with AVR.	M3.03	A
8	Write an Embedded C-program for temperature sensor (LM34/35) interfacing with AVR.	M3.06	A
9	List any 3 categories of embedded operating systems.	M4.03	R
10	List any three features of Macro C/OS-II	M4.04	R

PART C
Answer all questions. Each question carries seven marks.

(6 x 7 = 42 Marks)

		Module outcome	Cognitive level
III	Describe different types of communication interfaces in an embedded system.	M1.06	R
	OR		
IV	Classify embedded systems based on any two criteria.	M1.02	R
V	Explain the Data memory architecture of ATmega 32 with necessary diagrams. Mention the purpose of each memory.	M2.03	U
	OR		
VI	Explain about AVR Flag register with suitable diagram.	M2.03	U
VII	Describe about ATmega32 with the help of a simplified block diagram.	M2.03	U
	OR		
VIII	What are the Registers associated with AVR ports? Explain with examples.	M2.02	U
IX	Draw the diagram of interfacing Relay with AVR. Write the embedded C program associated with it.	M3.02	A
	OR		
X	Write a C-program to interfacing DC Motor with ATmega32. Draw the suitable circuit diagram.	M3.05	A
XI	Explain SPI interfacing with AVR.	M3.08	U
	OR		
XII	Write a C program to blink LED alternatively connected to PORTB with a delay of ls. Draw the suitable circuit diagram.	M3.02	U
XIII	Explain the functions of RTOS Kernel.	M4.02	U
	OR		
XIV	List the selection criteria for an embedded OS.	M4.03	U

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