TED (21)6201B
(Revision – 2021)

2102240182

Reg. No……
Signature…….

DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/ MANAGEMENT/COMMERCIAL PRACTICE, APRIL – 2024

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 *'one'* mark.

(9 x 1 = 9 Marks)

		Module Outcome	Cognitive level
1.	List any two applications of embedded systems.	M1.01	R
2.	What are actuators?	M1.05	U
3.	Give two examples for external communication interface?	M1.06	R
4.	What is the use of Program counter in AVR CPU?	M2.03	U
5.	Name any two registers associated with AVR ports	M2.03	R
6.	The expansion form of RTC is.....	M3.06	R
7.	Which PORT is used for ADC operations in ATMega 32?	M3.06	R
8.	What is kernel?	M4.01	U
9.	The term used to represent processes in RTOS for embedded system are called.....	M4.02	U

PART-B

II. Answer any '*eight*' questions from the following. Each question carries *'three'* marks.

(8 x 3 = 24 Marks)

		Module Outcome	Cognitive level
1.	What are the main software components in an embedded system	M1.03	R
2.	What is on board communication interface? Give 2 examples.	M1.06	U
3.	Describe about memory types used in embedded systems.	M1.05	R
4.	Name and compare any three AVR family members.	M2.01	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 an Embedded C-program for temperature sensor(LM34/35) interfacing with AVR	M3.03	U
8.	Write an AVR embedded C program for LED blinking with a delay of 1 s.	M3.02	A
9.	List any six popular RTOS.	M4.05	R
10.	List any three RTOS Kernel function.	M4.02	R

PART-C

Answer *'all'* questions from the following. Each question carries *'seven'* marks.

(6 x 7 = 42 Marks)

		Module Outcome	Cognitive level
III.	List differences between general purpose computer and embedded system.	M1.01	R
	OR		
IV.	Describe different types of communication interfaces in an embedded system.	M1.06	R
V.	What are the main parts of AVR data Memory? Explain with a Suitable circuit diagram?	M2.03	U
	OR		
VI.	Draw the block diagram of ATMega 32 and explain.	M2.02	U
VII.	Explain the different logical operations in AVR C with examples.	M2.05	U
	OR		
VIII.	Explain Interrupts of ATMega32.	M2.06	U
IX.	Write a C-program to display digits 0 to 9 with l s delay by turning ON the appropriate segments of 7 segment display. Draw the suitable circuit diagram.	M3.03	A
	OR		
X.	Draw the diagram of interfacing Opto Isolator with AVR and Write the necessary embedded c program.	M3.02	A
XI.	Explain about LCD Interfacing with AVR.	M3.04	U
	OR		
XII.	Explain stepper motor interfacing with AVR.	M3.05	U
XIII.	Describe the features and applications of Micro C/OS-II.	M4.04	U
	OR		
XIV.	Explain operating system architecture with simplified block diagram.	M4.01	U

****