TED (21) 4152
(Revision-2021)

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Reg.No.....
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DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/MANAGEMENT/ COMMERCIAL PRACTICE, APRIL - 2024

EMBEDDED SYSTEM & REAL TIME OPERATING SYSTEM

[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	UART is ……..	M1.02	R
2	Define microcontroller.	M1.01	R
3	ATmega 32 Timer 1 is …… Bit.	M2.05	R
4	State true or false: To access the data direction register of PORT B, we use DDRB.	M2.02	R
5	TIMSK is ……. Register.	M2.06	R
6	ADC stands for ……	M3.02	R
7	Define baud rate.	M3.01	R
8	Define process.	M4.03	R
9	The CPU utilization of good scheduling algorithm is ……..	M4.05	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	Compare RISC and CISC.	M1.01	U
2	Discuss Harvard Architecture.	M1.02	U
3	Draw the simplified view of AVR microcontroller.	M1.03	R
4	Write an AVR C program to send values 00 to FF to PORT B.	M2.02	A
5	Explain the steps in executing an interrupt.	M2.07	U
6	Define Data Serialization.	M2.04	R
7	Discuss the transmission methods in serial communication.	M3.01	U
8	Define Sensor & Actuator.	M3.02	R
9	What is the purpose of RX and TX pins in the ATmega 32.	M3.01	U
10	Discuss Threads.	M4.03	U

PART C
Answer all questions. Each question carries seven marks

(6 x 7 = 42 Marks)

		Module outcome	Cognitive level
III	Discuss the applications of embedded system.	M1.01	U
	OR		
IV	Discuss about AVR Status register.	M1.03	U
V	Discuss the different ways to generate time delay in AVR C.	M2.02	U
	OR		
VI	Write an AVR C program to monitor bit 5 of PORT C. If it is high send 55H to PORT B otherwise send AAH to PORT B.	M2.03	A
VII	Discuss about any three registers in AVR timer.	M2.06	U
	OR		
VIII	Write an AVR C Program to convert packed BCD 0x29 to ASCII and display the bytes on PORT B and PORT C.	M2.02	A
IX	Discuss features of ADC.	M3.02	U
	OR		
X	Explain AVR serial communication.	M3.01	U
XI	Describe Kernel of Operating System.	M4.02	U
	OR		
XII	Explain the factors for selecting scheduling algorithm.	M4.05	U
XIII	Explain process in RTOS.	M4.03	U
	OR		
XIV	Discuss Round Robin Scheduling with the help of a diagram.	M4.05	U

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