N21-09865

TED (15) - 5041
(Revision-2015)

Reg.No.....
Signature.....

DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/ MANAGEMENT/ COMMERCIAL PRACTICE - NOVEMBER-2021

EMBEDDED SYSTEM

[Maximum marks: 75] (Time: 2.15 Hours)

PART – A

Marks

I. Answer any *three* questions in one or two sentences. Each question carries 2 marks

1. Define SFR (Special Function Registers) in AT mega 32.
2. Define the Instruction pipeling method.
3. Write how to set PORT C, pin 5 as input in AT mega32.
4. State any two advantages of Raspberry Pi development board.
5. Define an Embedded system. (3 x 2 = 6)

PART – B

II.Answer any ***four*** of the following questions. Each question carries 6 marks

1. List the features of AVR microcontroller family.
2. Compare SRAM and EEPROM in AVR microcontroller chips.
3. Explain the structure of AVR assembly language programs.
4. Explain the macros used in AVR assembly language programs.
5. List and explain the data types in Embedded C.
6. Explain about interrupt priority in ATmega32 microcontroller.
7. Describe different categories of Embedded Operating System. (4 x 6= 24)

PART – C

Answer ***any of the three units*** from the following. Each full question carries 15 marks

UNIT –I

III. (a) Compare various members of AVR microcontroller family. (8)

(b) Describe about Direct addressing mode and Register Indirect addressing mode in ATmega32 (7)

OR

IV. (a) Explain the data memory in ATmega32 microcontroller (8)

(b) List and describe the flag bits in Status Register of AT maga32 (7)

UNIT-II

V. (a) Describe about Input/Output port programming in ATmega32 (8)

(b) List and explain the logic instructions for assembly language programming in ATmega32. (7)

OR

VI. (a) List and explain the conditional branch instructions for assembly language programming in ATMega32. (8)

(b) Write an assembly language program to multiply datas stores at memory locations 0X0240 and 0X0241. Store the results in memory locations 0X0242 (Low byte) and 0X0243 (High byte). (7)

UNIT-III

VII. (a) Write an Embedded C program to convert given ASCII numbers and to BCD number. (8)

(b) Describe the serial communication protocol IIC (Inter Integrated Circuit) (7)

OR

VIII. (a) Explain the Timer() programming in ATmega32. (8)

(b) Describe about memory allocation in C of ATmega32. (7)

UNIT-IV

IX. (a) Draw and explain the architecture of an Embedded System (8)

(b) List the characteristic features of Embedded System. (7)

OR

X. (a) Describe the concepts of Arduino development board. (8)

(b) List various applications areas of Embedded Systems. (7)
