

TED (15)5041  
(Revision- 2015)

**N20-06616**

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

DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/MANAGEMENT/  
COMMERCIAL PRACTICE – NOVEMBER -2020.

**EMBEDDED SYSTEMS**

(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. What is the amount of RAM and ROM in AT mega32.
2. Define Assembler Directive.
3. Define data serialization.
4. Define Context Switching.
5. State the role of kernel in Embedded OS. (3x2=6)

**PART - B**

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

1. List the features of AVR family.
2. Compare SRAM and EEPROM in AT mega32.
3. Describe the data formats in AVR.
4. Compare macros and subroutines.
5. Write an AVR C program to convert packed BCD 0X29 to ASCII and display the bytes on PortC and PortD.
6. Explain interrupt priority in AVR.
7. List the characteristic features of an Embedded system.

[4x6 =24]

**PART - C**

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

**UNIT I**

- III** (a) Explain the architecture of AVR with block diagram. (9)
- (b) Explain I/O memory in AVR. (6)

**OR**

- IV** (a) Explain the addressing modes of AT mega32. (9)  
(b) Explain status register of ATmega32. (6)

**UNIT- II**

- V** (a) Explain the steps to create an Assembly language program. (8)  
(b) Explain arithmetic instructions in AVR. (7)

**OR**

- VI** (a) Explain CALL instructions in AVR. (8)  
(b) Write an Assembly language program to toggle PORTB 200 times. (7)

**UNIT- III**

- VII** (a) Explain logic operations in C. (8)  
(b) Write an AVR C program to convert FD in hex to decimal and display the digits on PortB, PortC and PortD. (7)

**OR**

- VIII** (a) Explain the programming of Timer0 in CTC mode. (9)  
(b) Explain I2C and SPI. (6)

**UNIT – IV**

- IX** (a) List the application areas of Embedded OS. (9)  
(b) Explain the types of Embedded Operating System. (6)

**OR**

- X** (a) Explain the concept of RaspberryPi development board. (8)  
(b) List the categories of Embedded OS. (7)

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