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A26-8882

Reg. No……
Signature ……

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

EMBEDDED SYSTEM

[Maximum Marks: **100**] [Time: **3** Hours]

PART-A

[Maximum Marks: **10**]

I. (Answer ***all*** questions in one or two sentences. Each question carries ***2*** marks)

1. List AVR family members.
2. Write any 2 assembler directives.
3. What is PUSH and POP?
4. List any 4 sources of interrupts in AVR.
5. What is kernel? (5 x 2 = 10)

PART-B

[Maximum Marks: **30**]

II. (Answer ***any five*** of the following questions. Each question carries ***6*** marks)

1. Explain features of AVR family.
2. Differentiate between BRNE and BREQ instructions.
3. Write about structure of assembly language programs.
4. Explain the connection of RS232 with ATmega32.
5. Write about data types in C.
6. What are the characteristics of embedded Systems?
7. Discuss about arduino development board. (5 x 6 = 30)

PART-C

[Maximum Marks: **60**]

(Answer ***one*** full question from each Unit. Each full question carries **15** marks)

UNIT – I

III. a. Draw the architecture of ATmega32 and explain. (8)

b. Explain about data memory organization of ATmega32. (7)

OR

IV. a. Draw flag register of ATmega32 and explain. (7)

b. Explain about addressing modes of ATmega32. (8)

UNIT – II

V. a. Explain about data transfer instructions. (9)

b. Explain about pipelining. (6)

OR

VI. a. Explain about arithmetic instructions. (9)

b. Write an AVR assembly language program to add two bytes placed in SRAM location 0x200 and 0x201 .Store the sum in 0x300. (6)

UNIT- III

VII. a. Write about timer 0 with suitable diagram. (7)

b. Write an AVR C program to get a byte of data from port C. If it is less than 100, send it to port B; otherwise send it to port D. (8)

OR

VIII. a. What is SPI? Explain. (7)

b. Write an AVR C program to monitor bit 7 of port B. If it is 1, make bit 4 of port C as input ;otherwise pin 4 of port B to output. (8)

UNIT - IV

IX. a. Draw the architecture of embedded system and explain. (9)

b. What is

(i) Task scheduling (ii) context switching (iii) Mutual exclusion (6)

OR

X. a. Explain about application areas of embedded system. (7)

b. Explain about embedded OS architecture. (8)

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