TED (15) 6132
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Reg.No.....
Signature.....

DIPLOMA EXAMINATION IN ENGINEERING/ TECHNOLOGY/ MANAGEMENT/ COMMERCIAL PRACTICE, APRIL-2021

MICROCONTROLLERS

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

PART – A

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

I. (1). List any two 8 bit microcontrollers.

(2). Name three I/O registers associated with PORT of AVR.

(3). Define stack and write the need of Stack in AVR.

(4). Give the number of timers in AtMega32.

(5). Name the voltage converter that converts RS232 voltage levels to TTL voltage (3 x 2 = 6)

PART – B

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

II. (1). Write the functions of General Purpose Registers and Program counter in the AVR.

(2). Describe three criteria for choosing microcontrollers.

(3). List the factors that affect the accuracy of time delay.

(4). Explain about Bitwise operators in C with example.

(5). Describe enabling and disabling of interrupt.

(6). List ATmega32 ADC features.

(7). Compare Serial Communication and Parallel Communication. (4 x 6= 24)

PART – C

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

UNIT –I

III.(a). Explain the Harvard architecture in AVR with diagram. (8)

(b). Describe about the AVR status Register (7)

OR

IV.(a).Explain the features of RISC as implemented by the AVR microcontroller (7)

(b).Describe about the Data Memory of AVR (8)

UNIT-II

V.(a). Describe I/O ports and functions of I/O registers. (8)

(b).Write an AVR C program to toggle only bit4 of PORTB continuously without disturbing the rest of the pins of PORTB. (7)

OR

VI. (a). Describe the ways to create the time delay in AVR C. (6)

(b). Write an AVR program to get a byte of data from PORT D, and send it to PORT B. (9)

UNIT-III

VII.(a). Explain interrupts in AVR (7)

(b). Explain normal mode and the steps to program Timer0 in normal mode. (8)

OR

VIII.(a). Describe the basic register of timers with diagram (9)

(b). Explain about the sources of interrupts in AVR. (6)

UNIT-IV

IX. (a). Describe the pin details of LCD and its advantages. (8)

(b). Explain the interfacing of temperature Sensor to AVR with diagram (7)

OR

X. (a). Explain about DAC and the interfacing of DAC to AVR with diagram. (9)

(b). Draw the ATMEGA32 connection diagram to RS232. (6)

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