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Anna University Exams Nov Dec 2019 - Regulation 2017

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EC8691 MICROPROCESSORS AND MICROCONTROLLERS

PART B & PART C QUESTIONS

Unit I

1. Describe the addressing modes 8086 with examples from instruction set of 8086.
2. Discuss in detail the three types of interrupt system of Intel 8086/ Describe the interrupts of 8086 and its types with service routine
3. i) Explain briefly about internal hardware architecture of 8086 microprocessor with a neat diagram. ii) Write a 8086 assembly language program to convert BCD data - Binary data.
4. i) Write an 8086 ALP to sort out any given ten numbers in ascending and descending order. ii) Write an 8086 ALP to find the sum of numbers in an array of 10 elements.
5. (i) Outline the use of the following assembler directives: DD, ASSUME, EQU. (6) (ii) Explain about the Interrupt handling process in 8086
6. Explain the different instruction used for input and output operation in I/O mapped I/O mode of 8086.

Unit II

1. Explain system bus structure and timings in 8086.
2. Discuss the maximum mode configuration of 8086 with a neat diagram. Mention the functions of various signals.
3. Explain the loosely coupled configuration of multi-processor configuration with suitable diagram.
4. (i) Draw the timing diagram for interrupt acknowledgement cycle. ii) Distinguish between closely coupled and loosely coupled multiprocessor configurations.
5. Draw the functional block diagram of the I/O Processor and explain its working in the remote mode.

Unit III

1. Draw the block diagram of DMA controller IC and explain the function of each block.
2. Interface a D/A converter and A/D convertor with a microprocessor. Explain with a Program, how to generate a sine wave using this.
3. Explain design of Traffic Light Controller using 8086 microprocessor in detail. Write the algorithm and ALP for traffic light control system.
4. Draw and explain the functional diagram of 8251.
5. Draw and explain the block diagram of alarm controller.
6. (i) Bring about the features of 8251.
(ii) Discuss how 8251 is used for serial data communication.
(iii) Explain the advantages of using the USART chips in microprocessor based systems.
7. With a neat block diagram explain the function of each block of a programmable interrupt controller.

Unit IV

1. Draw the architecture of 8051 and explain.
2. List the special function registers of 8051 TMOD, SMOD and explain their functions.
3. Explain in detail the different addressing modes supported by 8051.
4. Draw & explain the pin configuration of 8051 in detail
5. (i) What are the functional blocks available in 8051? Explain with a block diagram. (ii) Tabulate the program control instructions of 8051 and explain any five of them.

Unit V

1. Draw the block diagram of Intel 8051 timer/counter and explain its different modes of operations.
2. Explain how to interface ADC and DAC with 8051 in detail with neat diagram.
3. Explain the different modes of operation of serial port in 8051, indicating various registers associated with it.

4. With necessary hardware & software details explain how to interface LCD'S with 8051
5. Explain how to interface external memory devices with 8051.
6. Explain in detail the procedure to interface stepper motor with 8051 and write an ALP to run the stepper motor in both forward and reverse direction with delay.
7. Write a program for generation of unipolar square waveform of 1KHZ frequency using Timer 0 of 8051 in mode 0. Consider the system frequency as 12 MHZ.

Questions Are Expected for University Exams This May or may Not Be Asked for Exams

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