7. Describe the following : 15

(i) RISC processors

(ii) Coprocessors

(iii) Interfacing of A/D converter with microcontroller.

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008403

May 2024

B. Tech. (ECE) (Fourth Semester)

Microprocessors and Microcontrollers (ECC-03)

Time : 3 Hours] [*Maximum Marks : 75*

Note : It is compulsory to answer all the questions (1.5 marks each) of Part A in short. Answer any *four* questions from Part B in detail. Different sub-parts of a question are to be attempted adjacent to each other.

Part A

1. (a) What are the advantages of using the MOVS and CMPS instructions over the MOV and CMP instructions while working with strings ? **1.5**

(b) If a data segment begins at address 2400H, what is the address of the last location in the segment ? **1.5**

(c) What are the features used in mode 2 in 8255 ? **1.5**

(d) What is the difference between 8085 and 8086 microprocessors ? **1.5**

(e) What is data transfer scheme and what are its types ? **1.5**

(f) What will be the frequency of the square wave generated by an 8253/8254 timer in mode-3 ? **1.5**

(g) What are the internal devices of a typical DAC ? **1.5**

(h) List the instructions of 8051 that affect the overflow flag in 8051. **1.5**

(i) What are the two operating modes of 80186 ? **1.5**

(j) How do ARM microcontrollers differ from PIC ? **1.5**

Part B

2. (a) Explain the addressing modes of 8085 microprocessor with examples. **9**

(b) Draw and explain the flag register structure of the 8086 microprocessor. **6**

3. (a) Draw and explain the operation of 8086 microprocess in maximum mode. **9**

(b) Write an assembly language program using 8085 microprocessor to find the multibyte addition. **6**

4. Interface DAC with 8086/8085 microprocessor through 8255 PPI. Draw the address mapping and interfacing mapping. Also write the subroutine to generate an inverse sawtooth waveform. **15**

5. (a) Draw and explain the block diagram of the 8051 microcontroller. **8**

(b) Write assembly language using 8051 microcontrollers to arrange ten 8-bit numbers in descending order. **7**

6. (a) Illustrate the options available with the Timer Mode (TMOD) register of 8051. **7**

(b) Draw and explain the block diagram of the 80486 microprocessor. **8**