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B.Tech. Degree V Semester Regular Examination November 2021

CS 19-202-0505 ADVANCED MICROPROCESSORS AND MICROCONTROLLERS
(2019 Scheme)

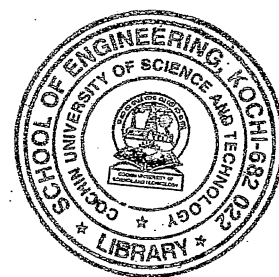
Time: 3 Hours

Maximum Marks: 60

PART A (Answer ALL questions)

(8 × 3 = 24)

- I. (a) Pipelining increases the overall instruction throughput. Justify this statement.
- (b) Draw the FPU and mention the importance of this unit.
- (c) State the reason why segmented memory model is used.
- (d) Name the rules how processor automatically chooses a segment.
- (e) Draw the TCON register of 8051 and explain.
- (f) Name and explain the interrupts of 8051.
- (g) Write notes on features of PIC16F84A.
- (h) Mention the advantages and disadvantages of PIC microcontroller.



PART B

(4 × 12 = 48)

- II. (a) Describe the technique how multiple instructions can be overlapped and executed. With an example, consider a processor having 4 stages and let there be 2 instructions to be executed. Visualize the execution sequence with the help of space-time diagrams for non-overlapped and overlapped execution. (8)
 - (b) Describe the address generation process in real addressing mode of 80386 microprocessor. (4)
- OR
- III. (a) Draw and Describe the internal architecture of 80886 processor. (8)
 - (b) Compare RISC and CISC processors. (4)
 - IV. (a) Write notes on Operand addressing. (6)
 - (b) Write notes on Flat memory model, segmented memory model and Real address mode memory model. (6)
- OR
- V. (a) Why Power reduction considered as a key point in system design? Also explain how is power managed dynamically in a system. (8)
 - (b) State the major issues in multi core processing. (4)
 - VI. (a) Draw and Explain the architecture of 8051 microcontrollers. (8)
 - (b) Compare Microprocessors and micro controllers. (4)
- OR
- VII. (a) Describe in detail about the interfacing of 8051 to stepper motor and write an Assembly Language Program to rotate the motor first +4 steps and then -6 steps. (8)
 - (b) WAP to Add the first 30 natural numbers and store the sum in a RAM location. (4)
 - VIII. (a) Draw and Explain the architecture of PIC 16f84A (8)
 - (b) Write notes on Working register(W) of PIC16F84A. (4)
- OR
- IX. (a) How PIC16F84A supports in circuit serial programming. Discuss about the pin description of PIC16F84A. (8)
 - (b) Write notes on registers of PIC16F84A. (4)