4E1214

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# 4E1214

## B. Tech. IV-Sem. (Back) Exam., Oct.-Nov. - 2020

## Computer Science & Engineering

## 4CS3 – 04 Microprocessor & Interfaces

**Time: 2 Hours** **Maximum Marks: 82**

**Min. Passing Marks: 29**

*Instructions to Candidates:*

***Attempt all ten questions from Part A, four questions out of seven questions from Part B and two questions out of five from Part C.***

*Schematic diagrams must be shown wherever necessary. Any data you feel missing may suitably be assumed and stated clearly. Units of quantities used /calculated must be stated clearly.*

*Use of following supporting material is permitted during examination. (Mentioned in form No. 205)*

1. NIL 2. NIL

## PART – A

**(Answer should be given up to 25 words only)** **[10×2=20]**

**All questions are compulsory**

Q.1 What is microcontroller?

Q.2 What are the functions of an – accumulator?

Q.3 What is the function of IO/M signal in the 8085?

Q.4 What are the control signals used for DMA operation?

Q.5 What is meant by interrupt?

Q.6 Define instruction cycle, machine cycle and T-state.

Q.7 Define RST instructions.

Q.8 What are the input / output device for interfacing?

Q.9 Define interfacing and matrix keyboard.

Q.10 Compare CALL and PUSH instruction.

## PART – B

**(Analytical/Problem solving questions)** **[4×8=32]**

**Attempt any four questions**

Q.1 Draw the architecture diagram of 8085 microprocessor and explain functions of various registers.

Q.2 How will you demultiplex the address and data bus? How can you interface 2048 kB RAM with 8085 microprocessor?

Q.3 Explain working and control word format of 8255 programmable peripheral interface.

Q.4 Explain working and mode of 8279 keyboard / display interface.

Q.5 Explain in detail of RS232C and RS422A.

Q.6 Explain the control word of 8259.

Q.7 Explain direct and indirect addressing with suitable examples.

## PART – C

**(Descriptive/Analytical/Problem Solving/Design Questions)** **[2×15=30]**

**Attempt any two questions**

Q.1 Explain the requirement of a program counter, stack pointer and status flags in the architecture of 8085 microprocessor, also draw and explain the timing diagram of memory read cycle.  [15]

Q.2 (a) Define instruction cycle, of an instruction MVI A, OS H using Timing diagram. [6]

(b) Write an assembly program to implement 16 bit counter. [4]

(c) Differentiate maskable & non-maskable interrupts of 8085. [5]

Q.3 Write short note on – [5]

(a) USART 8251 [5]

(b) IEEE 488 [5]

(c) Centronics [8]

Q.4 (a) Draw and explain the block diagram of 8255 PPI. [7]

(b) Draw and explain diagram of 8253.

Q.5 (a) Write a program to transfer a block of 10 data elements from memory location 5000 H to 6000 H. [7]

(b) Explain the following Instructions – [8]

(i) CMA

(ii) CMP

(iii) LDAX

(iv) LXI

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