PAPER ID-410132

Subject Code: KEC502

Roll No: | | | | | | | | | | | | | |

B. TECH.
(SEM V) THEORY EXAMINATION 2021-22
MICROPROCESSORS AND MICROCONTROLLERS

Time: 3 Hours *Total Marks: 100*

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. **2 x 10 = 20**

a. Discuss the specifications of 8085 microprocessor.
b. List the disadvantages of memory mapped I/O.
c. State the number of T-states required for following instructions: MVI A,34H , LXI H 2000 H.
d. List all the maskable and non-maskable interrupts of 8085.
e. Explain the physical address, offset address and segment address in context to 8086.
f. Discuss the various memory segments in 8086.
g. Explain the organization of stack in 8051.
h. Describe the bit-addressable RAM space available in 8051.
i. Discuss the significance of following SFR's of 8051- PSW, TCON
j. Describe the following instructions of 8051- (i)MOV A, @R0 (ii) MOVX A, @DPTR

SECTION B

2. Attempt any *three* of the following: **10 x 3 = 30**

a. Discuss the significance of following signals of 8085 in detail: HOLD, READY, ALE, HLDA, and CLK OUT.
b. Explain the execution of instructions: LXI H 2000H, LDA 2000 H, RAL, JNC, MVI. State the memory occupied by these instructions.
c. Explain the CWR of 8255 Programmable Peripheral Interface and also discuss the BSR mode.
d. Analyze the PSW of 8051 and also explain the relevant flag bits.
e. Discuss the significance of I/O ports along-with their dual roles in 8051.

SECTION C

3. Attempt any *one* part of the following: **10 x 1 = 10**

(a) Interface EPROM of 16 K using 8K X 8 chips and a RAM of 8K using 4K X 8 chips to the system lines of 8085 using a 3X8 decoder.
(b) Demonstrate the interfacing of output and input devices with 8085 along-with a suitable diagram. Also explain the relevant instructions used.

4. Attempt any *one* part of the following: **10 x 1 = 10**

(a) Write an assembly language program to find the largest number in a series of number stored from location 2000 H to 200A H. Store the result at location 3000 H. Explain the program with a relevant flowchart.
(b) Discuss the priorities of the interrupts available in 8085. Give a detailed explanation of SIM and RIM.

PAPER ID-410132

Subject Code: KEC502

Roll No: | | | | | | | | | | | | | |

5. **Attempt any *one* part of the following:** **10 x 1 = 10**

(a) Discuss the various addressing modes available in 8086 along-with examples.

(b) Demonstrate the architecture of 8253/54 Programmable Timer and discuss the control word register.

6. **Attempt any *one* part of the following:** **10 x 1 = 10**

(a) Analyze the architecture of 8051 microcontroller along-with a suitable block diagram.

(b) Illustrate the addressing modes of 8051 microcontroller. Support your answer with suitable examples.

7. **Attempt any *one* part of the following:** **10 x 1 = 10**

(a) Discuss the interrupts of 8051. Also give a detailed description of IE and IP registers.

(b) Analyze the process of serial communication in 8051 and also discuss the relevant Special Function Registers (SFR's) used in serial communication.