

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -3 EXAMINATIONS-2023

B.Tech-IV Semester (ECM)

COURSE CODE (CREDITS): 20B11EM411(4)

MAX. MARKS: 35

COURSE NAME: Microprocessor, Microcontrollers and Interfacing Techniques

COURSE INSTRUCTORS: Dr. Shweta Pandit

MAX. TIME: 2 Hour

Note: All questions are compulsory. Marks are indicated against each question in square brackets.

- Q1. a)** Interface eight 2764 EPROMS for a 64K X 8 section of memory in 8086 microprocessor based system. The starting address range is 70000H. Design the circuit along with mentioning the address range of each eight EPROM. [5][CO-3]
- Q2. a)** What are different pin connections common to all memory devices? [2][CO-3]
b) Differentiate between fixed port and variable port addressing in I/O devices with example. Also write an assembly language program with the help of fixed port addressing method to interface a switch to 8086 microprocessor. If switch is connected to 0, store 00H to 50000H memory location otherwise store FFH to memory location 50000H if it is connected to 1. [1+4] [CO-2][CO3]
- Q3. a)** Define the command byte A and command byte B of 82C55PPI. Design a circuit to interface 82C55PPI with 8086 microprocessor to allow I/O devices connection with microprocessor for following address specifications: Port A=00H, Port B=01H, Port C=02H, and CWR=03H. [2+2][CO-2][CO-3]
b) What is DMA and DMA controller? Describe the role of HOLD and HLDA pin in DMA operation. Also explain burst and cycle stealing mode of operation of DMA. [4][CO-4]
- Q4. a)** Write an assembly language code with proper explanation to interface an LED which blink at a rate of 2000 μ s. Mention the delay subroutine also which shows number of clock cycles required for 1000 μ s blink rate. [6][CO-2][CO3]
- Q5. a)** Differentiate between microprocessor and microcontroller. How Pentium 4 and Core 2 microprocessors are different from 8086 microprocessor? [1.5+1.5] [CO-5]
b) Write an assembly language program using INT 21H to take a input letter from keyboard and print 'The letter typed is ____'. [3][CO-4]
c) Write short note on following: [3][CO5]
(i) Arithmetic coprocessor
(ii) MMX technology
(iii) Superscalar architecture of Pentium microprocessor