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| **Experiment No.** | **Contents of the Experiment** |
|  | **PART-A** |
| **1** | a. Write an ALP to conduct binary search for unsorted array of N 8 bit numbers.  b. Read the status of two 8-bit inputs (X & Y) from the Logic Controller Interface and display X\*Y. |
| **2** | a. Read an alphanumeric character and displays its equivalent ASCII code at the center of the screen.  b. Display messages “DSCE” and “4CSE” alternately with flickering effects on a 7-segment display interface for a suitable period of time. Ensure a flashing rate that makes it easy to read both the messages. |
| **3** | a. Write an ALP to read an 8 bit number from the keyboard and check whether it is a prime number or not.  b. Convert a 16-bit binary value (assumed to be an unsigned integer) to BCD and display it from left to right and right to left for specified number of times on a 7-segment display interface. |
| **4** | a. Write an ALP to read a string from the keyboard and check whether it is a palindrome or not.  b. Display the system time on a 7-segment display interface. |
| **5** | a. Write an ALP to read two strings, store them in locations STR1 and STR2. Check whether they are equal or not and display appropriate messages. Also display the length of the stored strings.  b. Scan an 8 x 3 keypad for key closure and to store the code of the key pressed in a memory location or display on screen. Also display row and column numbers of the key pressed |
| **6** | 6a. Write an ALP to generate and print first N Fibonacci numbers. Read 8 bit number N from keyboard.  b. Drive an elevator interface in the following way:  i. Initially the elevator should be in the ground floor, with all requests in OFF state.  ii. When a request is made from a floor, the elevator should move to that floor, wait there for a couple of seconds (approximately), and then come down to ground floor and stop. If some requests occur during going up or coming down they should be ignored. |
|  | PART-B |
| **1** | Write an assembly language program to find the largest element in agiven array of N =\_\_\_ h bytes at location 4000h. Store the largest element at location 4062h. |
| **2** | Write an assembly language program to perform the addition and subtraction of two 16-bit numbers. |
| **3** | Write an assembly language program to count number of ones and zeros in an eight bit number. |
| **4** | Write a Program to check whether given number is palindrome or not. If palindrome store FFh in accumulator else store 00h in accumulator. |
| **5** | Write an assembly language program to implement (display) an eight bit UP/DOWN binary (hex) counter on watch window. |