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| **1** | **Lab Test-1**  **Assembly level Programs using 8086**  Design and develop an assembly language program to search a key element “X” in a list of ‘n’ 16-bit numbers. Adopt Binary search algorithm in your program for searching. |
| **2** | Design and develop an assembly program to generate first 10 prime numbers. |
| **3** | Design and develop an assembly program to sort a given set of ‘n’ 16-bit numbers in ascending order. Adopt Bubble Sort algorithm to sort given elements. |
| **4** | Read an alphanumeric character and display its equivalent ASCII code at the center of the screen. |
| **5** | Design and develop an assembly program to compute GCD of two given numbers |
| **6** | Design and develop an assembly program to compute the factorial of a given number |
| **7** | 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. |
| **8** | Design and develop an assembly program to evaluate the expression  9x3+ 5x2-2. Read the value of ‘x’ from keyboard and display the result on the monitor |
| **9** | Design and develop an assembly program to find the occurrence of character ‘E’ in a given string “ TEMPLE “ and replace with character ‘A’ using string instructions |
| **10** | Reverse a given string and check whether it is a palindrome or not. |

**Note: Record should be submitted on the day of lab test for the program executed in the lab**

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| **Lab Program** | **Program Details ( For Record Writing)** |
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| **3** | Read an alphanumeric character and display its equivalent ASCII code at the center of the screen. |
| **4** | Reverse a given string and check whether it is a palindrome or not. |
| **5** | 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. |
| **6** | Develop an assembly language program to compute nCr using recursive procedure. Assume that ‘n’ and ‘r’ are non-negative integers |
| **7** | Read the current time from the system and display it in the standard format on the screen |
| **8** | Write a program to simulate a Decimal Up-counter to display 00-99. |
| **9** | Read a pair of input co-ordinates in BCD and move the cursor to the specified location on the screen. |
| **10** | Write a program to create a file (input file) and to delete an existing file |
|  | **Interfacing Programs Using 8051** |
| **11** | Read the status of eight input bits from the Logic Controller Interface and display ‘FF’ if it is the parity of the input read is even; otherwise display 00. |
| **12** | Implement a BCD Up-Down Counter on the Logic Controller Interface. |
| **13** | Scan a 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. |
| **14** | Drive a Stepper Motor interface to rotate the motor in specified direction (clockwise or counter-clockwise) by N steps. Introduce suitable delay between successive steps. |
| **15** | Display messages FIRE and HELP 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 |
| **16** | 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 |
| **17** | 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. |