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**Terminal Examination – Fall 2021**

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| Course Title: | Programming Fundamentals-Lab | | | | Course Code: | | CSC103 | Credit Hours: | | 1(0,1) |
| Course Instructor/s: | Ms. Mamoona Tasadduq | | | | Programme Name: | | BS Computer Science | | | |
| Semester: | 1st | Batch: | FA21-BCS | Section: | C | | Date: | |  | |
| **Time Allowed:** | **03 Hours** | | | | **Maximum Marks:** | | | | **50** | |
| Student’s Name: |  | | | | Reg. No. |  | | | | |
| **Important Instructions / Guidelines:**   * Only ‘C’ programming language is considered wherever applicable. * Paste your C code in the document file and rename it with your Registration Number. * Write comments in the start of C Source code file which contain your name and registration number and submit it along with your document file. | | | | | | | | | | |

**Question 1) [CLO5]** Create a menu driven program that should simulate the working of a student management system. The menu option should be as given below:

1. Add Students’ Details
2. Display all Students Details
3. Search a student with his program
4. Display the total number of female students enrolled in BCS program
5. Exit.

Create a structure called **Student** to hold

StudentId

Age,

FirstName,

LastName,

Program,

Gender

Define an array of struct student. The structure array must hold information of up to 5 students. [8]

Use following functions in your program to perform different tasks:

1. void add\_students() function to add students information. Note that the maximum number of students is 5. This function also displays a message when no space is available for storing the information of a student. [8]
2. void disp\_students() function to display information for all students. [8]
3. void search\_student\_by\_program() function to search a student by his program name and display search results. *(use strcmp function to compare strings)*  [8]
4. void display\_female\_students() function to count the female students in a particular program. [8]

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| **Sample Input/ Output:**   1. Enter 1 to add student details 2. Enter 2 to display student details 3. Enter 3 to search a student with Program Name 4. Enter 4 to display the total number of female students in a program 5. Exit.   Select your option: 1  **Enter Student 1 Details:**  Enter Id: 123  Enter Age: 19  Enter First Name: Sarah  Enter Last Name: Khan  Enter Program: BCS  Enter Gender: F  **Enter Student 2 Details:**  Enter Id: 126  Enter Age: 20  Enter First Name: Asim  Enter Last Name: Ali  Enter Program: BSE  Enter Gender: M  **.**  **.**  **.**  **Enter Student 5 Details:**  Enter Id: 99  Enter Age: 19  Enter First Name: Saad  Enter Last Name: Hassan  Enter Program: BCS  Enter Gender: M  Select your option: 3  **Search a student**  Enter a student’s First Name: Ali  Sorry! No record Found.  Select your option: 3  **Search a student**  Enter a student’s First Name: Saad  Result Found..!!  Name: Saad Hassan  Age: 19  Program: BCS  Gender: Male  Select your option: 4  Enter the program: BCS  **The number of female students enrolled in BCS is 1**  Select your option: 5  The program exited successfully. |

**Question 2.** Write a program that takes 5 registration numbers (e.g., FA21-BCS-001) from the user and break them down into semester, program, and roll number. Your program should then store the information in file *student.txt*. [10]

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| **Sample Input:**  Enter 5 registration numbers:  **FA21-BCS-110**  **FA20-BCS-122**  **SP21-BSE-134**  **FA21-BCS-137**  **FA21-BSE-145** |

**The sample output file:**

**Student.txt**

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| Semester | Program | Roll No. |
| FA21 | BCS | 110 |
| FA20 | BCS | 122 |
| SP21 | BSE | 134 |
| FA21 | BCS | 137 |
| FA21 | BSE | 145 |