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Daffodil International University

Faculty of Science & Information Technology

Department of Software Engineering

Final-Term Examination – Spring 2026

Course Code: SE 121; Course Title: Structured Programming

Sections & Teachers: All; MTK, MSS, JIC, MR, AHZ, SCS, PS

Time: 2 Hours **Marks: 40**

Answer ALL Questions

[The figures in the right margin indicate the full marks and corresponding course outcomes. All portions of each question must be answered sequentially.]

1. a) **Detect** any errors in the following codes and **modify** them with the necessary changes. **[Marks-6]**

i)
```
#include <stdio.h>
int main() {
   int a[5] = {1,'c', 3.5, 4,6};
   for(int i = 0; i < 5; i++) {
      printf("%d\n", arr[i]);}
   a[6] = 10;
   int sum;
   for(int i = 0; i < 5; i++) {
sum = sum + a[i];}return 0;}
```

ii)
```
#include <stdio.h>
#include <string.h>
int main() {
   char s1[6] = "Hello",s2[10];
   s2 = s1;
   int len = strlength(s1);
   printf("%s\n", s1+ 10);
   printf("%d\n",len);
   return 0;}
```

b) Suppose you are working as an assistant in a library's digital records section. Your task is to analyze the book borrowing data for a period of 3 days. **Construct** a C program that uses an array to store the number of books borrowed each day. The program should determine and display the ***maximum*** and ***minimum*** number of books borrowed during these 3 days. **[Marks-7]** **CLO-3** ***Level-3***

Sample Input	Sample Output
Books borrowed on Day 1: 12 Books borrowed on Day 2: 8 Books borrowed on Day 3: 15	Maximum books borrowed: 15 Minimum books borrowed: 8

c) You are asked to **construct** a C program that takes two strings as input. The program should identify the larger string based on lexicographical (dictionary) order, and then concatenate the two strings. After concatenation, the program should calculate the length of the updated string. The output should display the larger string first, followed by the concatenated string and its length, separated by a space. **[Marks-7]**

Sample Input	Sample Output
diu swe	swe diuswe 6
Amar Matha	Matha AmarMatha 9

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2 *a)* **Identify** the output of the following C codes and **Explain** the reasoning behind your answer. **[Marks-6]** **CLO-4** ***Level-4***

i)
```
#include <stdio.h>
int fun(int arr[], int n) {
    int i, result = 1;
    for (i = 0; i < n; i++) {
        if (arr[i] % 2 == 0)
            result += arr[i];
        else result -= arr[i];}
    return result;}
int main() {
    int data[] = {3, 2, 5, 4};
    printf("%d\n", fun(data, 4));
    return 0;}
```

ii)
```
#include <stdio.h>
int count(char str[]{
  int i = 0, count = 0;
    while (str[i] != '\0'){
     if (str[i] == 'a' || str[i] == 'e'
       || str[i] == 'i' || str[i] == 'o' ||
       str[i] == 'u')
          count++; i++;}
    return count;}
int main(){
    char text[] = "Execution";
    printf("%d\n",count(text));
    return 0;}
```

2. *b)* As a junior software developer at the Bangladesh Election Commission, you are tasked with developing a system to process voter eligibility for a batch of citizens during national elections. Each day, data of multiple individuals is collected, including: **[Marks-7]** **CLO-4** ***Level-3***

- An array storing the ages of citizens.
- An array storing their citizenship status (1 = Citizen, 0 = Not a citizen).

A person is eligible to vote if: Age ≥ 18 & Citizenship status = 1
Analyze the scenario and write a C program with the following ***function*** to count how many individuals are eligible to vote:
int countEligibleVoters (int ages [], int citizenship [], int number);

Sample Input	**Sample Output**
Enter number of people: 3 Enter age and citizenship (1/0): 20 1 Enter age and citizenship (1/0): 17 1 Enter age and citizenship (1/0): 25 0	Total Eligible Voters = 1

c) Suppose you are assisting a bank employee in comprehending how a basic banking system handles customer accounts. The bank wishes to display the most recent account information, permit simple activities like deposits and withdrawals, and maintain each customer's personal information, including name, account number, and current amount. **Construct** a C program using a structure named Account to store client data, handle deposits and withdrawals (making sure that withdrawals are only permitted when there is a sufficient balance), and show the final account balance along with additional information. **[Marks-7]** **CLO4** ***Level-3***

Sample Input	**Sample Output**
Enter name: Rehan Khan Enter account number: 1001 Enter initial balance: 5000 Enter amount to deposit: 2000 Enter amount to withdraw: 1500	--- Account Details --- Name : Rehan Khan Acc No : 1001 Balance : 5500