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Daffodil International University

Department of Information & Communication Engineering (ICE)
Faculty of Engineering
Mid-Term Exam, Semester: Fall 2026
Course Code: ICE 1143 Course Title: Structured Programming
Section: A Course Teacher: Md. Taslim Arefin (TA)

Time: 90 minutes Full Marks: 25

Answer any four of the following questions including question no 5.

1 a. State different properties of an Algorithm. 1 (CLO1, C1)
b. Write a C program which will reverse a 4-digit integer. 3 (CLO3, C3)
c. Illustrate a flowchart to check whether a number is divisible by 5 and 3 or 6. 2 (CLO1, C3)

2 a. Write a C program to read roll no and marks of three subjects and calculate the total, average and division. [Hint: 1st Division=80+, 2nd Division=70+, 3rd Division=60+, Pass=50+, Fail= less than 50.] 3 (CLO3, C3)
b. Suppose you have three angles of a triangle. First check whether they form a valid triangle. If valid, classify it as acute-angled, right-angled, or obtuse-angled. Write a C program to solve the given conditions. 3 (CLO3, C3)

3 a. Determine the output of the following program 1 (CLO2, C3)

```
void main(void)
{
int x=10, y=10, z; char b='B';
  z = x!=4 || y == 2 && b=66;
     printf("z=%d\n", z);
}
```

b. A bank approves a loan only when the applicant satisfies all of the following conditions: 3 (CLO3, C3)
- Age is between 21 and 65 inclusive.
- Monthly salary is at least Tk 30,000.
- Work experience is at least 2 years.
- If the salary is at least Tk 100,000, experience of 1 year is sufficient, provided the age condition is satisfied.

Write a C program to determine whether any loan will be approved or not.

c. Illustrate a flowchart to determine a given year is leap year or not. 2 (CLO2, C3)

4 a. Determine the result of the following expression: 1 (CLO2, C3)

```
int main(){
int a=101;
printf(" The value is: %c",a);}
```

b. Determine the output of the following program: 2 (CLO2, C3)

```
void main()  {
int a = 20, b = 30;
if (a == b);
printf("%d %d\n", a, b);
printf("Have a nice day");}
```

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c. Write a C program to find the eligibility of Scholarship of a student of ICE department. [To avail a full scholarship your GPA must be 3.90 or above and family income is 30K or less. To avail a 75% scholarship your GPA must be 3.75 or above and family income is 50K or less. To get a 50% scholarship your GPA must be 3.50. Otherwise you are not eligible] 3 (CLO3, C4)

5 a. Determine the output of the following program: 2 (CLO2, C3)

```
#include <stdio.h>
int main()
{
 int a = 10, b = 0;
 if(a > 0 && b < 0)
     a++;
 else if(a < 0 && b < 0)
     a--;
 else if(a < 0 && b > 0)
     b++;
 else
     b--;
printf("%d\n",a + b);
}
```

10 -1

b. Your goal is to create a futuristic café using automatic menu selection for the Lunch items. Write a C Program using switch case statement to solve it. 3 (CLO3, C4)

c. Determine the output of the following program. 2 (CLO2, C3)

```
void main()
 {
  int check=2;
  switch(check)
    {
  case 1: printf("D.W.Steyn");
  case 2: printf(" M.G.Johnson");
  case 3: printf(" Mashrafee Mortaza");
  default: printf(" Tamim Iqbal");
  getch();
    }
```

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