NATIONAL INSTITUTE OF BUSINESS MANAGEMENT
Diploma in Software Engineering-18.1| DSE-1-3-03
Diploma in Computer Networks-18.1| DCN-1-3-03
Diploma in Computer System Design-18.1| DCSD-1-3-03
Programming Fundamentals

Time allowed: Three hours   21st, June 2018, 1PM-4PM

Instructions to candidate:

- **Paper consists of five questions**
- **Answer all the questions**

1.

a. List the three structures used in programming   (03 marks)

b. A telecom calculates monthly bills for their customers. Draw a flow chart to input the monthly mobile bill amount and tax rate (%) and output the total bill amount including the tax amount.   (07 marks)

c. A bank calculates the bonus for each account balance in the bank. Draw a flow chat to input an account number, account category and account balance and output the bonus amount of the account with account number   (10 marks)

Account Category	Bonus Rate
1	5% of the Account Balance
2	3% of Account the Balance

2.

a. Differentiate a variable and an array in programming.   (03 marks)

b. A private money exchange center converts dollars in to Sri Lankan rupees. Write a pseudo code to input the amount in dollars and output the amount in Sri Lankan rupees.
        Assume 1 Doller = 161 LKR   (07 marks)

c. An electricity supply company calculates the customer monthly bill amounts. Write a pseudo code to input the bill amounts of 10 electricity bills and output total amount of all the electricity bills.   (10 marks)

3.

a. A bus owner has set several buses for a passenger service. Write a Programme in C to input the daily income of 20 buses in to an array and output the average daily income of a bus.
                                                                                            (08 marks)

b. A taxi receives hires from several customers. Write a Programme in C to input customer number, distance travelled (in kms) by the customer, charge per Kilometer and output the income received from all customers who have completed hires. A kilometer charge can be different for each customer.
   Use -111 for customer number to terminate and display the output   (12 marks)

4.
   a. List out three features of a function   (03 marks)
   b. What is the difference between a Local and a Global variable? Provide suitable examples
      for each   (04 marks)
   c. Write a program in C with following functions. You need to call and execute each function.
      Use a meaningful name for each function.   (13 marks)

          Function-1   :
                  Input Bill Amount, Discount Rate
          Function-2   :
                  Calculate Discount Amount
          Function-4
                  Output Discounted Bill Amount

5. Write the output of the following programs. You should indicate if there is an error or no output.

a.	b.
| ```c
void main ()
{int a,b;
 for (a=1; a<=2; a++)
 { for (b=1; b<=2; b++)
   {   printf("%d", a++*b++);
   }
 }
}
```<br><br>(4 Marks) | ```c
void main ()
{ int x, q=3;
 for (x=2; x<=4; x++)
 {    while(q<=3)
      {   if(x==q)
          {  break;
          }
          q++;
      }
      printf("%d", x);
 }
}
```<br><br>(4 Marks) |

c.

```c
void main ()
{ char myval; myval=' b ';int L;
   switch(myval)
   {case 'a':
     { for(L=1;L<3;L++)
        { printf("%d\t", L);
        } break;
     }
     case 'b' :
     {for(L=1; L<3;L++)
        { printf("NIBM\n");
        } break;
     }
     default:
     {  for(L=1;L<3;L++)
        {  printf("I am default");
        }
     }
   }
}
```
(4 Marks)

d.

```c
void main ()
{int x,y;
  for (x=1; x<=3; x++)
  {
    for (y=0; y<2; y++)
    {
        if (x== 2)
           continue;
        printf("%d",x*y);
    }
  }
}
```
(4 Marks)

e.

```c
main ()
{int a=5,k;
   do
   {
        for (k=5; k>=1; k--)
        {
             printf("%d", a*k);
        }
   a++;
   }
   while(a>5);
}
```
(4 Marks)

End of the paper