



SCHOOL OF PROFESSIONAL STUDIES

BACHELOR OF INFORMATION COMMUNICATION TECHNOLOGY

UNIT CODE: BCT 211, UNIT NAME: INTRODUCTION TO OBJECT ORIENTED PROGRAMMING

September – December 2018 End Semester Exam - Time: 2 Hours

Instructions: Answer Question ONE (Compulsory) and any other TWO questions.

Question One (30 Marks)

a) Explain what is meant by the following OOP concepts (10 marks)

- i) Object
- ii) Class
- iii) Encapsulation
- iv) Inheritance
- v) Polymorphism

b) Define a class in C++ with following description: (8 Marks)

Private Members

- A data member Flight number of type integer
- A data member Destination of type string
- A data member Distance of type float
- A data member Fuel of type float

- A member function CALFUEL() to calculate the value of Fuel as per the following criteria:

Distance	Fuel
<=1000	500
more than 1000 and <=2000	1100
More than 2000	2200

Public Members

- A function FEEDINFO() to allow user to enter values for FlightNumber, Destination, Distance & call function CALFUEL() to calculate the quantity of Fuel.
 - A function SHOWINFO() to allow user to view the content of all the data members
- c) Write a C++ program that finds and prints the circumference and area of a circle with radius 2.5 **(6 Marks)**
- d) Differentiate between procedure oriented programming and object oriented programming listing three characteristics of each paradigm. **(6 Marks)**

Question Two (15 Marks)

- a) Explain the use of pointers in C++ program **(4 Marks)**
- b) Write a program to overload function **Area()** to calculate area of a circle and area of a rectangle. **(5 Marks)**
- c) State any six factors considered for quality **(3 Marks)**
- d) Rewrite the following program after removing syntactical errors and underline the corrections **(3 Marks)**

```
#include<iostream.h>
main()
{
int sum[2,4];
for(i=0;i<2;i++)
for(j=0;j<=3;i++)
{ cout<<sum;
}
```

Question Three (15 Marks)

a) Write the C++ program code that will produce the following result

Value of a: 10
Value of a: 11
Value of a: 12
Value of a: 13
Value of a: 14
Value of a: 15
Value of a: 16
Value of a: 17
Value of a: 18
Value of a: 19

Using:

i) While loop

(2 marks)

ii) For loop

(2 marks)

iii) Do...while loop

(2 marks)

b) State four difference between constructor and normal function

(4 Marks)

c) Differentiate between the following

(5 marks)

i) Base class and Derived class

ii) Dot (.) operator and Operator of Scope (::)

Question Four (15 Marks)

a) Define a macro and explain two advantages of using a macro

(3 Marks)

b) Write a C++ program to find sum of two integers using class and object.

(8 marks)

c) Differentiate the following terms with an example of each.

(4 Marks)

i. Encapsulation and data hiding

ii. malloc() and calloc()

Question Five (15 marks)

a) Write a C++ program that outputs a complete multiplication table on screen. (6 Marks)

b) Describe the following operators

(3 Marks)

i. Mathematical

- A member function CALFUEL() to calculate the value of Fuel as per the following criteria:

Distance	Fuel
<=1000	500
more than 1000 and <=2000	1100
More than 2000	2200

Public Members

- A function FEEDINFO() to allow user to enter values for FlightNumber, Destination, Distance & call function CALFUEL() to calculate the quantity of Fuel.
 - A function SHOWINFO() to allow user to view the content of all the data members
- c) Write a C++ program that finds and prints the circumference and area of a circle with radius 2.5 (6 Marks)
- d) Differentiate between procedure oriented programming and object oriented programming listing three characteristics of each paradigm. (6 Marks)

Question Two (15 Marks)

- a) Explain the use of pointers in C++ program (4 Marks)
- b) Write a program to overload function Area() to calculate area of a circle and area of a rectangle. (5 Marks)
- c) State any six factors considered for quality (3 Marks)
- d) Rewrite the following program after removing syntactical errors and underline the corrections (3 Marks)

```
#include<iostream.h>
main()
{
int sum[2,4];
for(i=0;i<2;i++)
for(j=0;j<=3;i++)
{ cout<<sum;
}
```

- ii. Logical
- iii. bitwise

c) Differentiate between the following with aid of examples:

(6 Marks)

- i) Variable Declaration and Variable Initialization
- ii) Function Declaration and Function Definition
- iii) Local Variable and Global Variable