



PIONEER INTERNATIONAL UNIVERSITY

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UNIVERSITY SPECIAL EXAMINATIONS

ACADEMIC YEAR: 2021/2022

SEMESTER: JAN-APRIL 2022

CODE: BSIT 1020

UNIT: INTRODUCTION TO PROGRAMMING

DATE: APRIL 2022

TIME: 2 HOURS

Instructions:

- i. Answer Question ONE AND ANY OTHER TWO QUESTIONS
- ii. Write clearly and legibly

QUESTION 1

(TOTAL: 30 Marks)

- a) Clearly explain what programming is and explain any three advantages it has in the life in an IT person? (5 Marks)
- b) By the use of a clear source code, extensively distinguish between:
 - i. Arithmetic and Relational operators (4 Marks)
 - ii. Assignment and Increment/Decrement Operators. (4 Marks)
 - iii. Command operators and Logical (4 Marks)
- c) State and explain the five steps involved in problem solving. (5 Marks)
- d) Explain while distinguishing the meaning of the following terms.
 - i. Compiler and Algorithm (4 Marks)
 - ii. Constant and variable (4 Marks)

QUESTION 2

(TOTAL: 20 Marks)

- a) With the help of a working source code, explain the three rules used when creating valid identifiers. (3 Marks)
- b) During the system life cycle of any system, why is Analysis necessary? (4 Marks)
- c) During feasibility study, the analyst has to evaluate both legal and economic feasibility. Extensively differentiate between the two using illustrative example. (4 Marks)



d) Look at the code below.

```
// drive.cpp : Defines the entry point for the console application.
#include "stdafx.h";

#include<iostream>
using namespace std
int main{
    float height,weight,teeth,education;
    string feet,bodystatus,fit,y;

    //weight=75; // Assignment operations
    cout<<"Welcome to the toughest Police Recruitment Drive, EVER!!\n";
    cout<<"Please enter your height\n" << endl;
    cin<<height;

    if (height >= 5.2 ){
        cout<<"Please enter your weight\n"
        cin>>weit;

        if (weight >=75){
            cout<<"Passed" <<endl;

            cout<<"Please your number of teeth\n" <<endl;
            cin>>tith;
            if(teeth==32){
                cout<<"Passed" <<endl;
                cout<<"What's your last class in high school?\n";
                cin>>education;
                if(education=4){
                    cout<<"Welcome";
                }
                else{
                    cout<<"Rudi shule";
                }
            }
            else{
                cout<<"Kibogoyo" <<endl;
            }
        }
        else{
            cout<<"Less Waight" <<endl;
            cout<<"Go away" <<endl;
        }
    }
    else{
        cout<<height<<endl;

        cout<<"Go gym" <<endl;
    }
}
```

```
system("pause");
return=0;
}
```

- i. Mention any four errors in the code above (4 Marks)
- ii. Correct the above program without errors for it to be able to achieve the expected functionality (5 Marks)

QUESTION 3

(TOTAL: 20 Marks)

- i. While using a complete C++ program distinguish between compound and simple statements. (3 Marks)

```
#include <iostream>
using namespace std;

int main()
{
int Marks = 1;
while (Marks <= 5)
{
int Marks = 1;
cout << Marks << "\n";
Marks ++;
}
return 0;
}
```

- ii. Assume that you are a hired programmer for a school in Nairobi. You have been asked to develop an application for the school that will be used to carry out the following transaction in a certain class called ClassX.
 - a. Record cats that will be done by a that class
 - b. Register new students
 - c. Enroll students in a certain class
 - d. Record the exam scores in that class.
 - e. Compute the total marks scored by each student

Assume that there will be at most 11 students in that class. Using, functions for each transaction and other control structures, write an application that will satisfy these requirements.

(10 Marks)

iii.

a. Compare and contrast any two merits and demerits of implementing a control structure.

(4 Marks)

b. Write a complete program that incorporates at least three control structures.

(3 Marks)

QUESTION 4

(TOTAL: 20 Marks)

a) Clearly distinguish between executable code and source code

(2 Marks)

b) Look at the following code:

```
#include <iostream>
using namespace std;
void main(){
    int x;
    cout<<"Enter an integer to determine whether it is odd or even"
    cin >> x;
    if ( x % 2 == 0 ) {
        cout << " The Number "<<x << " is even ";
    }
    if ( x % 3 == 0 ) {
        cout << " The Number "<<x << " is odd ";
    }
}
```

i. How will this code behave if values between 3 and 7 are supplied one after the other? Why is this so?

(4 Marks)

ii. Re-write the code by correcting it so that all supplied values between 1 and 10 are clearly distinguished

(4 Marks)

c) With examples, clearly distinguish between selection and sequence control structures. Illustrate your answer using a complete C++ program.

(4 Marks)

d) Write a complete program that incorporates the following operators

(6 Marks)

a. Logical

b. Conditional (?)

c. Comma (,)

d. Arithmetic