**NAME** : _____
**STUDENT NO.** : _____
**GROUP** : .....

## LESSON 1: WRITE SIMPLE PROGRAM IN C++

### QUESTION 1

Convert flowchart from ***Question 5 – Question 8*** of ***Topic 1: Class Exercise*** to its equivalent complete program in C++.

### QUESTION 2

Write a program that takes a depth (in kilometers) inside the earth as input data, compute and display the temperature at this depth in degrees Celsius and degrees Fahrenheit. The relevant formulas are:

Celsius = 10 * depth + 20
Fahrenheit = 1.8 * Celsius + 32

### QUESTION 3

Write a program in C++ to compute quotient and remainder.

## LESSON 2: CONSTANTS

Definition:
Constants are expressions with a fixed value.

Table 1: Two different approaches in declaring a constant in C++

**Approach 1 - Typed constant expressions**

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

const double pi = 3.14159;
const char newline = '\n';

int main ()
{
  double r=5.0;           // radius
  double circle;

  circle = 2 * pi * r;
  cout << circle;
  cout << newline;
}
```

**Approach 2 - Preprocessor definitions**

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

#define PI 3.14159
#define NEWLINE '\n'

int main ()
{
  double r=5.0;           // radius
  double circle;

  circle = 2 * PI * r;
  cout << circle;
  cout << NEWLINE;
}
```

### QUESTION 1

Write a program in C++ that can calculate the volume of a sphere. The formula for calculating the volume is given as below:

$$V = \frac{4}{3}\pi r^3$$

Hint:
1) Set the value of PI as a constant to 3.14159.
2) Radius should be entered by the user.

**QUESTION 2**

Write a program in C++ that is equivalent to the given flowchart below: