CLASSWORK APPLICATIONS FOR C++ PROGRAM STRUCTURE, ALGORITHM AND FLOWCHARTS
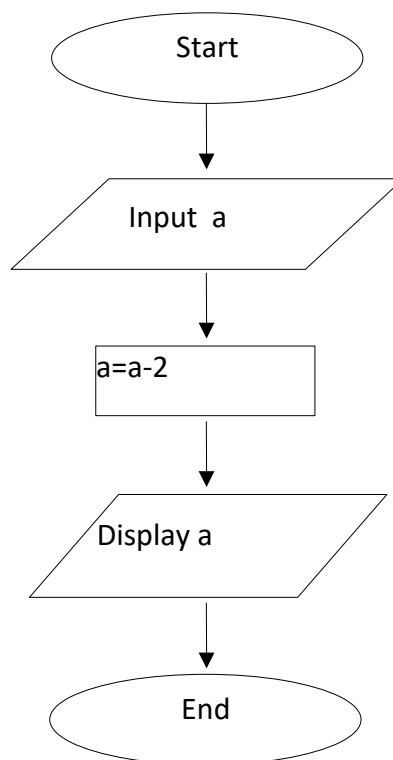
Q1. Compile and run the program given below. Remove the compile and link time errors if you have.

```
#include <iostrem>

int main() {
    int a,b;
    cout>>"input a and b\n";
    cin<<a<<b;
    b=a+b;
    cout>>"a =">>a>>"  b =">>b>>endl;
    system ("pouse");
}
```

Q2. Write the algorithm and draw the flowchart of a program that calculates half of a given number. Then write its source codes.

Q3. Write a C++ program of the flowchart that is given below;

```
        ┌───────────┐
        │   Start   │
        └───────────┘
              │
              ▼
        ╱───────────╱
       ╱  Input  a ╱
      ╱───────────╱
              │
              ▼
        ┌───────────┐
        │ a=a-2     │
        └───────────┘
              │
              ▼
        ╱───────────╱
       ╱ Display a ╱
      ╱───────────╱
              │
              ▼
        ┌───────────┐
        │    End    │
        └───────────┘
```

Q4. Write a C++ program to find the multiplication of three different numbers. The numbers are input data from keyboard.

Q5. Write four different C++ programs to obtain the following output (with different statements).

```
Up to now we solved
4 questions
```

Q6. Write a program to:

-Define two float type variables;

-Assign them to 3.45 and 1.245

-Calculate their multiplication and display the result.

Q7. Write a program to:

-Define two short integer numbers;

-Assign them to 12E7 and 36E8.

-Find the summations of them.

What is the problem in your program? Discuss!

Q8. Write a program to:

-Declare two logical variables b1 and b2;

-Assign them **true** and **false** respectively.

-Display their values.

Q9. Write a program to:

-Declare c1, c2, c3, c4 and c5 as char.

-Assign them to M, E, 2, 4, 0 respectively.

-Display ME240 using c1, c2, c3, c4 and c5.

Q10. Write the previous program using a single character string.

Q11. Write a program to input mass and height of an object from keyboard. Then calculate the potential energy of this object (Hint: Potential Energy = m*g*h).

Q12. Write a program that calculates the area of a rectangle. The width and height of the rectangle must be given using keyboard.

Q13. Write a program that calculates the area and circumference of a triangle. Its base and height must be given as initial values of variables.