

Q.1

```
#include<simplecpp>
main_program {
repeat(5)
{
    repeat(3){
        cout << "hello";
    }
    cout << "hello";
}
}
```

How many times will “hello” be printed?

- a. 20 b. 90 c. 15 d. 10

Q.2

```
#include <simplecpp>
main_program{
    turtleSim();
    forward(10) ;
    penUp();
    forward(20);
    penDown();
    forward(10) ;
    penUp();
    forward(20);
    penDown();
    forward(10) ;
    penUp();
    forward(20);
    penDown();
    forward(10) ;
    penUp();
    forward(20);
    penDown();
    cout << “thanks”;
    wait(10);
}
```

Rewrite the code using Repeat.

Q.3

```
#include <simplecpp>
main_program{
    turtleSim();
    forward(40);
    right(45);
    forward(40*sqrt(2));
    right(135);
    forward(50);
    wait(5);
}
```

A. How far is the turtle from its initial position?

B. In which direction is the turtle facing?

a.North b.East c.West d. South

Q.4

```
#include<simplecpp>
main_program{
    turtleSim();
    repeat(10){
        repeat(5){
            repeat(10){
                forward(1);
            }
            forward(2);
        }
        forward(1);
    }
    wait(20);
}
```

What will be length of the line drawn in pixel ?

i) 600 ii) 610 iii) 1500 iv) 1510

Q.5

How many pentagons you will see drawn by the following program?

- i) 1 ii) 5 iii) 10 iv) 50

```
#include<simplecpp>
main_program{
    turtleSim();
    repeat(5){
        repeat(10){
            forward(30);
            left(360.0/5);
        }
    }
    wait(20);
}
```

Q.6

Consider the following program:-

```
#include <simplecpp>
main_program{
    turtleSim();
    repeat(x){
        repeat(y){
            right(180);
            forward(6480/x);
        }
        left(180);
        forward(y);
    }
}
```

For which of the following values of x and y, the net displacement of the turtle would be 0?

- A. x=80 and y=80
- B. x=81 and y=80
- C. x=80 and y=81

D. $x=81$ and $y=81$

Q.7

In the above question, Find the set of all (x, y) for which the net displacement is zero.

Q.8

In the following code repeat command is used twice. The number of repetitions are given by the two variables 'p' and 'q'. Assuming that the turtle starts from the origin pointing towards the right what are the final co-ordinates of the turtle?
Your answer should be a function of 'p' and 'q'.

```
#include <simplecpp>
main_program
{
    turtleSim();
    repeat(p)
    {
        penDown();
        repeat(q)
        {
            forward(5) ;
        }
        right(90);
        forward(10);
        left(90);
    }
    wait(10);
}
```

Q.9

Write a code to trace an equilateral triangle of area input by the user.

Q.10

The program below draws a circle. Fill in the blank such that it output the radius of the circle.

```
#include<simplecpp>
main_program
{
    int radius;
    turtleSim();
    repeat(360)
    {
        forward(2);
        left(360.0/360);
    }
    radius = _____;
    cout << "radius of circle is: " << radius;
    wait(5);
}
```

Q.11

Can you trace a perfect smooth circle using simplecpp?

Q.12

Fill in the blanks such that below program takes radius as input and draw a circle of that radius.

```
#include<simplecpp>
main_program
{
    turtleSim();
    int radius;
    double circum;
    cout << "Enter length of radius";
    cin >> radius;
    circum = 2*PI*radius;
    repeat(360)
    {
        forward(_____);
        left(360.0/360);
    }
    right(90);
    penUp(30);
    forward(100);
    wait(5);
}
```

Q.13

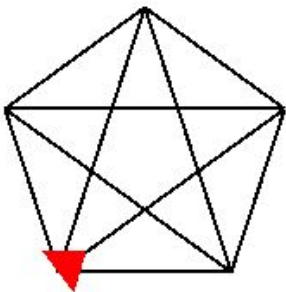
Fill in the blanks such that it outputs a right angle triangle:

```
#include<simplecpp>
main_program
{
    turtleSim();
    forward(45);
    left(90);
    forward(60);
    left(__A__(or)_B__(or)_C__);
    forward(__D__);
    wait(10);
}
```

- A. using sine function
- B. using cosine function
- C. using tangent function
- D. length of third side.

Q. 14

Fill in the blank to draw the below diagram



```

#include<simplecpp>
main_program
{
    turtleSim();
    int side;
    cout<<"Enter length of the side of pentagon";
    cin>> side;
    repeat(5){
        forward(side);
        left(360.0/5);
    }
    left(36);
    repeat(5){
        forward(__A__);
        left(__B__);
    }
}
wait(10);
}

```

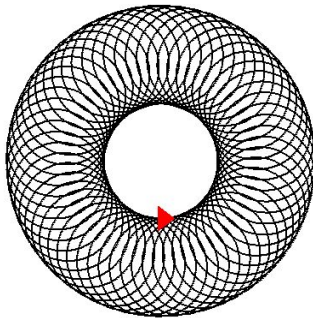
A)Length of side of star.

(Hint: You can use trigonometric functions and square root function)

B)turtle turn at what angle.

Q. 15

Fill in the blanks and correct the errors in the below program such that it draws the below diagram.



```
#include<simplecpp>
main_program{
    turtleSim();
    int side;
    side = 360 ;
    repeat(side/6){
        forward(7);
        left(360.0/(side/6));
        repeat(____){
            forward(1);
            ____ (360.0/side)
        }
    }
    wait(20);
    cout >> "Done" ;
}
```