Lab – 2 Solution:

```
# importing package
import turtle

# set the color mode to 255. so that, value of any color can be
between 0 to 255
turtle.colormode(255)

# change the fill color to grey
turtle.fillcolor("pink")

#start the filling
turtle.begin_fill()

# use forward by 100 (deault = black)
turtle.forward(100)
# change the color of turtle
turtle.pencolor("red")

# use forward by 100 in 90 degrees
# right (color = red)
turtle.right(90)
turtle.forward(100)

# change the color of turtle
turtle.pencolor(41, 41, 253)

# use forward by 100 in 90 degrees
# right (color = blue)
turtle.right(90)
turtle.forward(100)

# change the color of turtle
turtle.pencolor(41, 253, 41)

# use forward by 100 in 90 degrees
# right (color = green)
turtle.right(90)
turtle.forward(100)


# End the fill
turtle.end_fill()
turtle.done()
```

Lab – 3 Solution:

```
import turtle

radius = eval(input("Enter the radius : "))
turtle.circle(radius)
turtle.done()
```

Lab – 4 Solution:

```
import turtle

width = eval(input("Enter the width: "))
height = eval(input("Enter the height: "))

turtle.forward(width)
turtle.left(90)
turtle.forward(height)
turtle.left(90)
turtle.forward(width)
turtle.left(90)
turtle.forward(height)

turtle.done()
```

Lab – 5 Soution:

```
# take input from the user
print("Select operation.")
print("1.Add")
print("2.Subtract")
print("3.Multiply")
print("4.Divide")

choice = input("Enter choice(1/2/3/4):")

num1 = int(input("Enter first number: "))
num2 = int(input("Enter second number: "))

if choice == '1':
    print(num1, "+", num2, "=", num1+ num2)

elif choice == '2':
    print(num1, "-", num2, "=", num1 - num2)

elif choice == '3':
    print(num1, "*", num2, "=", num1 - num2)

elif choice == '4':
    print(num1, "/", num2, "=", num1 / num2)
else:
    print("Invalid input")
```

Lab – 6 Solution:

```
import turtle

shape = input("What shape do you want to draw?(circle/dot/rectangle) :
").lower()

if(shape == 'rectangle'):
    turtle.forward(100)
    turtle.left(90)
    turtle.forward(100)
    turtle.left(90)
    turtle.forward(100)
```

```
    turtle.left(90)
    turtle.forward(100)
elif(shape == 'circle'):
    turtle.circle(100)
elif(shape == 'dot'):
    turtle.dot("red",100)
else:
    turtle.write("Invalid input")

turtle.done()
```

Lab – 7 Solution:

```
import turtle

for i in range(6):
    turtle.circle(100)
    turtle.left(60)

turtle.done()
```

Lab – 8 Solution:

```
import turtle

p=turtle.Pen()

n = eval(input("How many sides you want? "))

if(n > 2):
    for i in range(n):
        p.forward(20)
        p.left(360/n)
else:
    p.write("Cannot draw a polygon")
turtle.done()
```

Lab – 9 Solution:

```
import turtle

colors =
["red","yellow","blue","green","orange","purple","brown","gray","pink","nav
y"]
for i in range(100):
    turtle.pencolor(colors[i%10])
    turtle.forward(i*2)
    turtle.left(89)

turtle.done()
```

Lab – 10 Solution:

```
import turtle
import random

def drawStar(p,x,y,color):
    p.penup()
    p.goto(x,y)
    p.pendown()
    p.color(color)
    p.begin_fill()
    for i in range(5):
        p.forward(50)
        p.right(144)
    p.end_fill()

p = turtle.Pen()
p.speed(0)
p.hideturtle()
colors =
["red","yellow","blue","green","orange","purple","brown","gray","pink","nav
y"]
for i in range(100):
    x = random.randint(-300,300)
    y = random.randint(-300,300)
    drawStar(p,x,y,random.choice(colors))
turtle.done()
```

Lab – 11 Solution:

```
import random
choices = ["rock", "paper", "scissors"]
print("Rock crushes scissors. Scissors cut paper. Paper covers rock.")
player = input("Do you want to be rock, paper, or scissors (or quit)? ")
while player != "quit":                  # Keep playing until the user quits
    player = player.lower()              # Change user entry to lowercase
    computer = random.choice(choices)    # Pick one of the items in choices
    print("You chose " +player+ ", and the computer chose " +computer+ ".")
    if player == computer:
        print("It's a tie!")
    elif player == "rock":
        if computer == "scissors":
            print("You win!")
        else:
            print("Computer wins!")
    elif player == "paper":
        if computer == "rock":
            print("You win!")
        else:
            print("Computer wins!")
    elif player == "scissors":
        if computer == "paper":
            print("You win!")
        else:
            print("Computer wins!")
    else:
        print("I think there was some sort of error...")
    print()                              # Skip a line
    player = input("Do you want to be rock, paper, or scissors (or quit)?
```

```
")
```

Lab – 12 Solution:

```
#RandomSmileys.py
import random
import turtle
t = turtle.Pen()
t.speed(0)
t.hideturtle()
turtle.bgcolor("black")
def draw_smiley(x,y):
    t.penup()
    t.setpos(x,y)
    t.pendown()
    # Head
    t.pencolor("yellow")
    t.fillcolor("yellow")
    t.begin_fill()
    t.circle(50)
    t.end_fill()
    # Left eye
    t.setpos(x-15, y+60)
    t.fillcolor("blue")
    t.begin_fill()
    t.circle(10)
    t.end_fill()
    # Right eye
    t.setpos(x+15, y+60)
    t.begin_fill()
    t.circle(10)
    t.end_fill()
    # Mouth
    t.setpos(x-25, y+40)
    t.pencolor("black")
    t.width(10)
    t.goto(x-10, y+20)
    t.goto(x+10, y+20)
    t.goto(x+25, y+40)
    t.width(1)
for n in range(50):
    x = random.randint(-turtle.window_width()//2,
                       turtle.window_width()//2)
    y = random.randint(-turtle.window_height()//2,
                       turtle.window_height()//2)
    draw_smiley(x,y)
```