CODE:

LED blinking:

```
import time
import RPi.GPIO as GPIO
GPIO.setmode(GPIO.BOARD)

led = 5 # GPIO pin number is 5 and name is GPIO3

GPIO.setup(led, GPIO.OUT, initial = 0) # Setup LED and
set it initially to OFF

while(True):
    GPIO.output(led, GPIO.HIGH) # Set LED to ON
    time.sleep(2) # Wait for 2 seconds

    GPIO.output(led, GPIO.LOW) # Set LED to OFF
    time.sleep(2)
```

Traffic light:

```
import RPi.GPIO as GPIO
import time

# Using physical pin locations
GPIO.setmode(GPIO.BOARD)

# Pin header IDs for LEDs and button
YellowLed = 35
RedLed = 33
GreenLed = 37
safeCrossing = 38
button = 11

# Set up LEDs
GPIO.setup(RedLed, GPIO.OUT)
GPIO.setup(YellowLed, GPIO.OUT)
GPIO.setup(GreenLed, GPIO.OUT)
GPIO.setup(safeCrossing, GPIO.OUT)
GPIO.output(RedLed, GPIO.HIGH)
GPIO.output(YellowLed, GPIO.HIGH)
GPIO.output(GreenLed, GPIO.HIGH)

# Set up button
GPIO.setup(button,GPIO.IN,pull_up_down=GPIO.PUD_DOWN)

def cycleLights ():
    print ('Traffic: GREEN off, AMBER on')
    GPIO.output(GreenLed, GPIO.HIGH)
    GPIO.output(YellowLed, GPIO.LOW)
    time.sleep(1)

    print ('Traffic: AMBER off, RED on')
    GPIO.output(YellowLed, GPIO.HIGH)
    GPIO.output(RedLed, GPIO.LOW)
    time.sleep(1)

    print ('Padestrian: Safe to cross on')
    GPIO.output(safeCrossing, GPIO.LOW)
```

```
time.sleep(5)

print ('Padestrian: Safe to cross flashing')
for flash in range(0, 5):
        GPIO.output(safeCrossing, GPIO.HIGH)
        time.sleep(0.8)
        GPIO.output(safeCrossing, GPIO.LOW)
        time.sleep(0.8)

print ('Padestrian: Safe to cross off')
GPIO.output(safeCrossing, GPIO.HIGH)
time.sleep(1)

print ('Traffic: AMBER and RED on')
GPIO.output(YellowLed, GPIO.LOW)
time.sleep(1.5)

print ('Traffic: AMBER and RED off, GREEN on')
GPIO.output(RedLed, GPIO.HIGH)
GPIO.output(YellowLed, GPIO.HIGH)
```

```
    GPIO.output(GreenLed, GPIO.LOW)

    print ('Padestrian button blocked to let traffic flow')
    time.sleep(4)
    print ('Padestrian button unblocked')
    return

def teardown ():
    GPIO.output(RedLed, GPIO.HIGH)
    GPIO.output(YellowLed, GPIO.HIGH)
    GPIO.output(GreenLed, GPIO.HIGH)
    GPIO.cleanup()
    return

try:
    while True:
        ButtonPress = False
        # Lights start with the green traffic light on
        # and the padestrian light off
        GPIO.output(GreenLed, GPIO.LOW)
        GPIO.output(safeCrossing, GPIO.HIGH)

        # Wait until button is presses
        print ('Waiting for a padestrian to press the
button', end='')

        while not ButtonPress:
            # Check every 2 seconds for a press
            print ('.', end='')
            time.sleep(1)
            ButtonPress = GPIO.input(button)

        print ('\nPadestrian button press detected!')
        cycleLights()

except KeyboardInterrupt:
    teardown()
```