4.13

import matplotlib.pyplotas plt

x1 = [‘Monday’, ‘Tuesday’, ‘Wednesday’]

y1 = [450,300,290]

plt.plot(x1, y1, label = “Grade A”, marker=’\*’)

x2 = [‘Monday’, ‘Tuesday’, ‘Wednesday’]

y2 = [360, 500, 101]

plt.plot(x2, y2, label = “Grade B”)

plt.legend()

plt.show()

4.14

import numpyas np

import matplotlib.pyplotas plt

objects = (‘English’, ‘Maths’, ‘Science’, ‘Social Studies’, ‘Arts’, ‘Computer Science’)

y\_pos = np.arange(len(objects))

pass\_percentage = [80,93,96,89,64,100]

plt.bar(y\_pos, pass\_percentage, align=’center’, alpha=0.5, color=’green’, width=0.5)

plt.xticks(y\_pos, objects)

plt.ylabel(‘Percentage’)

plt.show()

4.15

import matplotlib.pyplotas plt

x = [14, 150, 290, 32, 56, 100, 200, 390, 45, 78, 11]

y = [1,2,3,4,5,6,7, 8, 9, 10, 11]

plt.scatter(x, y)

plt.show()

4.16

import matplotlib.pyplotas plt

x1 = [8, 55, 43, 16, 7, 10, 11, 78, 99, 100]

y1 = [2, 4, 6, 8, 10, 12, 14, 16, 18, 20]

x2 = [44,55,66,77,11,22,33,88,99,110]

y2 = [1,2,3,4,5,6,7,8,9,10]

plt.scatter(x1, y1, c =”red”)

plt.scatter(x2, y2, c =”green”)

plt.xlabel(“X-axis”)

plt.ylabel(“Y-axis”)

plt.show()

4.17

from matplotlib import pyplotas plt

import numpyas np

fig,ax = plt.subplots(1,1)

pp = np.array([19, 27, 44, 56, 78, 92, 99, 38, 49, 69, 75, 102, 25, 29])

ax.hist(pp, bins = [18,25,40,60,75,110], color=’aqua’)

ax.set\_xticks([18,25,40,60,75,110])

ax.set\_xlabel(‘Age range’)

ax.set\_ylabel(‘Number of people’)

plt.show()

4.18

import numpy

Age=[45, 63, 21, 34, 47, 56, 42, 39, 51, 28]

x = numpy.mean(Age)

print(‘Mean=’,x)

4.19

import numpy

Age=[45, 63, 21, 34, 47, 56, 42, 39, 51, 28]

x = numpy.median(Age)

print(‘Median=’,x)

4.20

from scipyimport stats

Age=[45, 63, 21, 34, 28, 47, 56, 28, 42, 39, 51, 28]

x = stats.mode(Age)

print(‘Mode=’, x)

4.21

import numpy

Age=[45, 63, 21, 34, 47, 56, 42, 39, 51, 28]

x = numpy.std(Age)

print(‘Std. dev.=’,x)

4.22

import numpy

Age=[45, 63, 21, 34, 47, 56, 42, 39, 51, 28]

x = numpy.var(Age)

print(‘Variance=’,x)