Q1

I)C is nearly normal

II)D is bimodal

III)A is skewed

IV)B is Having outliers

Q2

i)no the weight of individual pkgs don’t have to be normally distributed.

According to the central limit theorem,it is the sampling means that will eventually form a normal distribution as the number of samples increases beyond a point. So checking the weight of individual packages is not necessary.No matter what the shape of parent distribution,the sampling distribution of the mean approaches a normal distribution.

ii)SE is std dev of sampling distribution =sigma^2/n=(5^2)/25=1

Thus the statement is true.

Q3

Std error over two years=std dev/sqrt(n)=40/sqrt(104)=3.922

Hence pnorm(45,mean=50,sd=3.922)=0.1011794

Hence pnorm(55,mean=50,sd=3.922)=0.8988206

Hence cdf(55)-cdf(45)=0.7976412=P(no investigation)

P(investigation)=1-0.7976412=0.2023588

#Q4

Trying out all the options:

Let us try n=250,where n is the number of samples

Hence std error of sampling dist=40/sqrt(250)=40/15.811=2.529822

If prob(investigation)=0.05,then prob(no investigation)=1-005=0.95

Now lower bound=45 and upper bound=55 beyond which there will be an investigation.Now 0.475 is probab of