Abdulmonem Alhajji

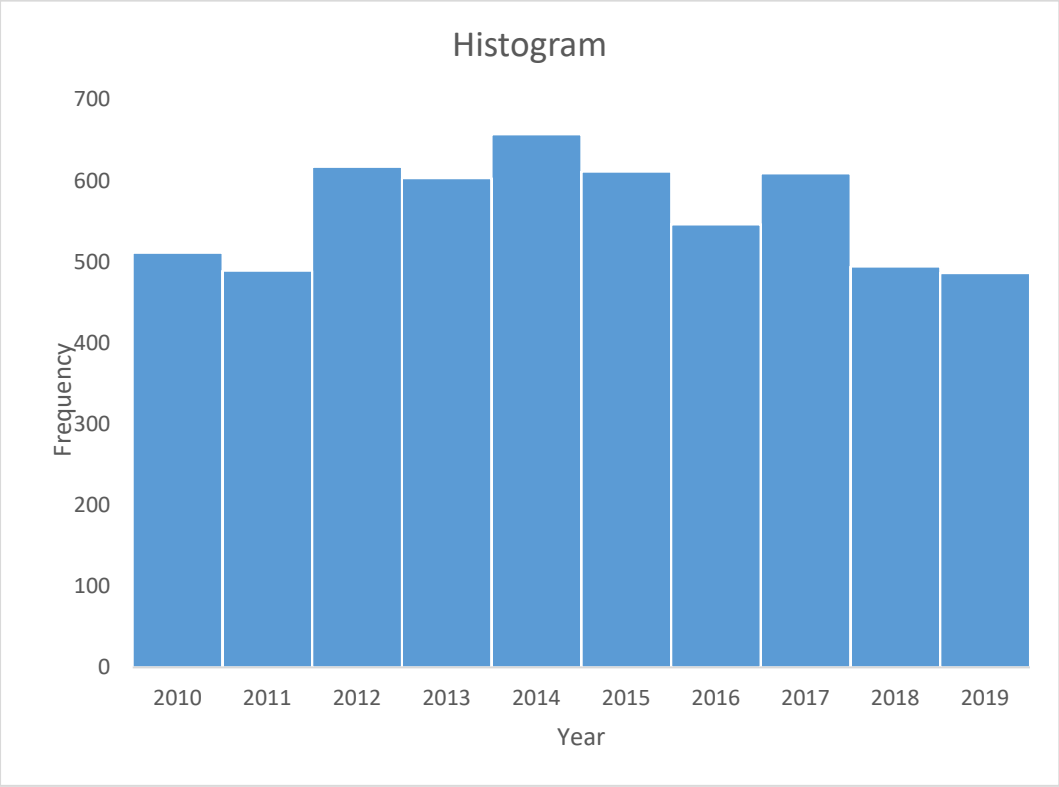
MATH 080

Final Exam

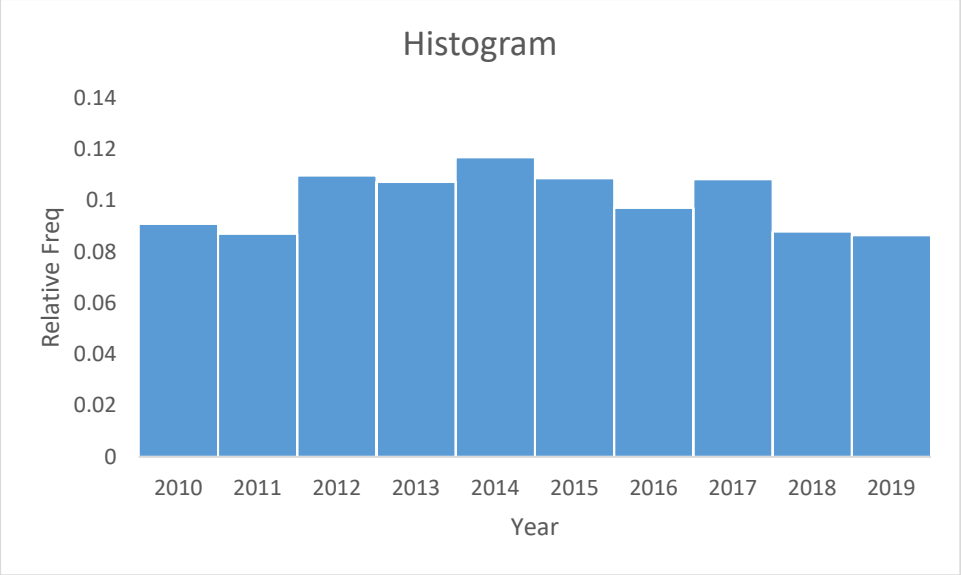
08/14/2020

Q 1.

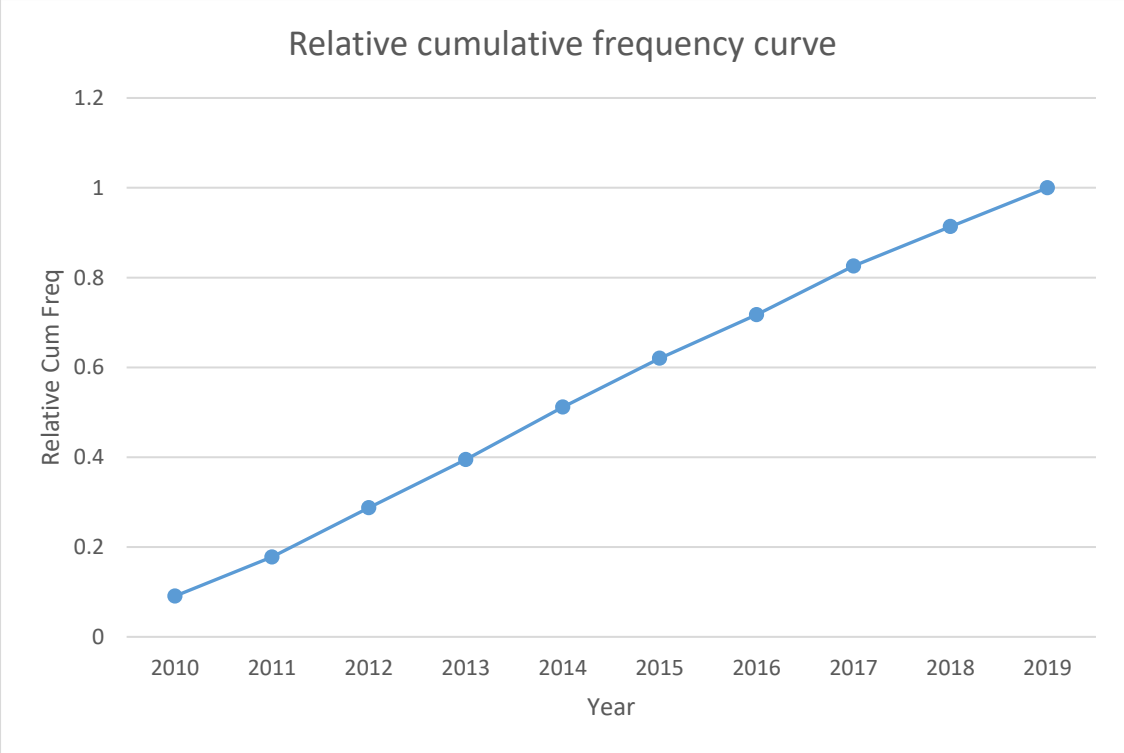
Histogram



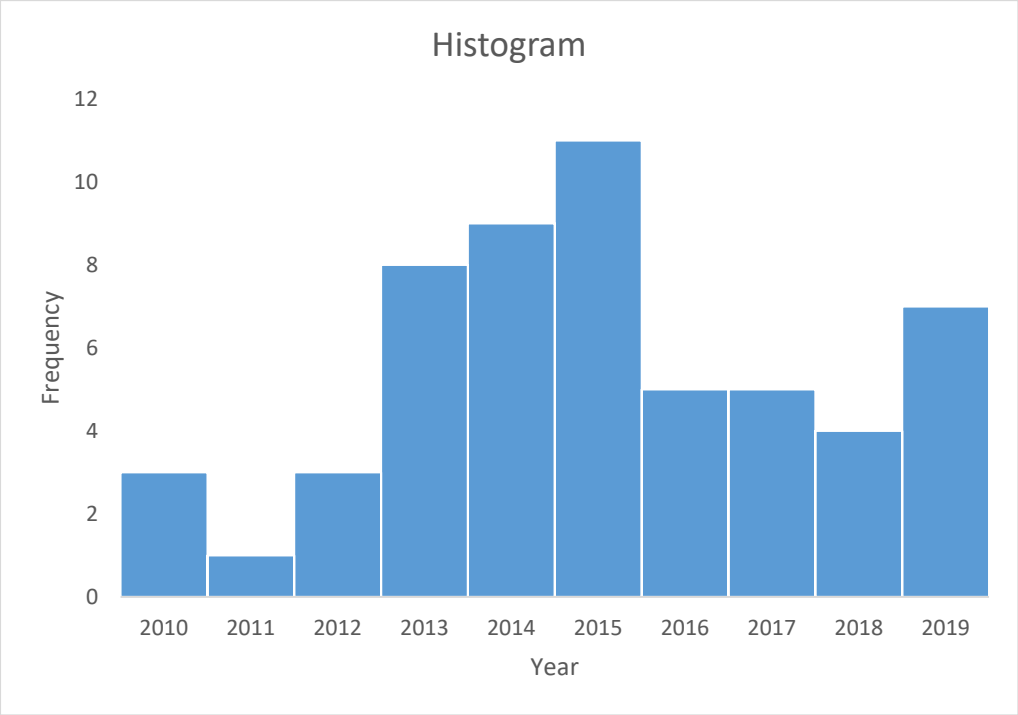

B.Histogram with relative frequency

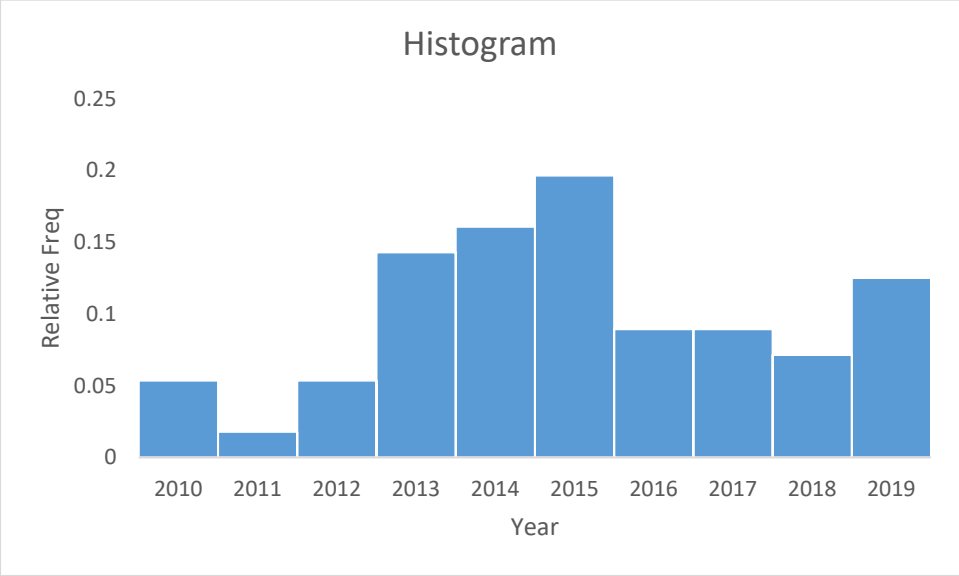


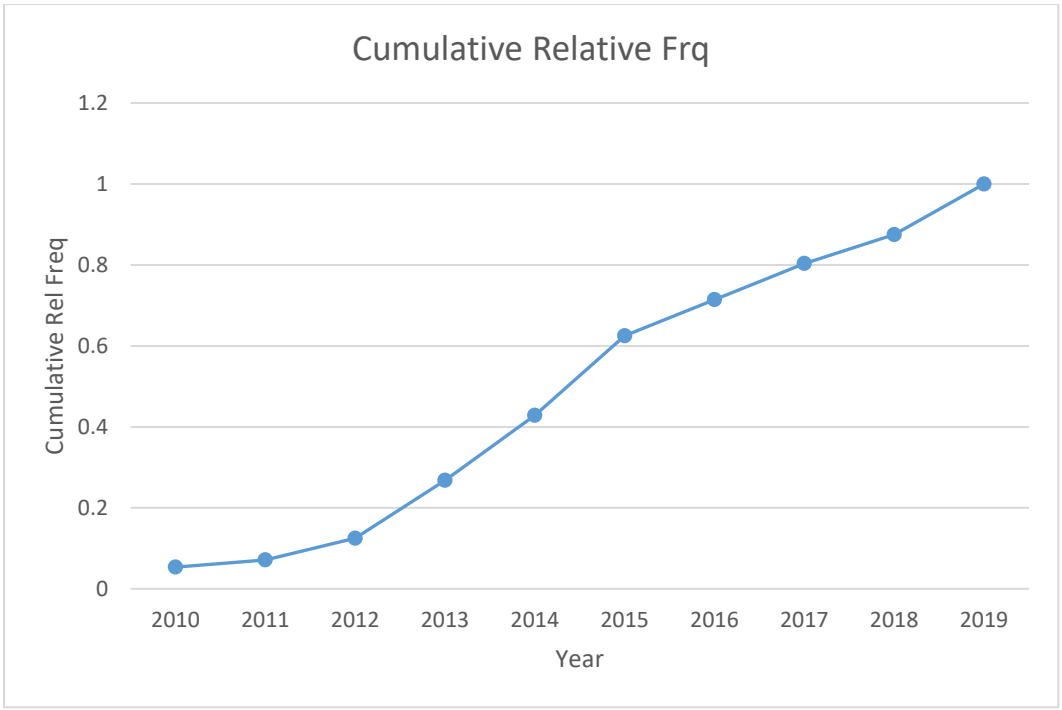

C.Relative cumulative frequency curve



D. For environmental science




Cumulative Relative Frq
1.2
1
0.8
0.6
0.4
0.2
0
Cumulative Rel Freq
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
Year

Q 2.

$\frac{k}{100}(n+1) = \frac{60}{100} * 2199$ =1319.4

Q. 3

| Year | X | $(X_i - \bar{X})^2$ |
|---|---|---|
| 2010 | 46 | 331.24 |
| 2011 | 49 | 231.04 |
| 2012 | 63 | 1.44 |
| 2013 | 55 | 84.64 |
| 2014 | 72 | 60.84 |
| 2015 | 76 | 139.24 |
| 2016 | 76 | 139.24 |
| 2017 | 76 | 139.24 |
| 2018 | 59 | 27.04 |
| 2019 | 70 | 33.64 |
| Total | 642 | 1187.6 |

a.

Mean = 64.2

$SD$= 11.48719

b.

Z score corresponding to 3 is 64.2 +3*11.48719 =98.66

c. For uniform distribution in the interval (a,b), the average value is (a+b)/2

Average =(15+25)/2 =20

Q. 4

Probability density function $p(x) = \frac{1}{30-10} = \frac{1}{20}$

$$E(X) = \sum xp(x) = \frac{1}{20}(10 + 11 + \ldots + 30) = \frac{410}{20}$$

Q.5

The answer B

Question 6

Part A
one standard deviation above the placebo result = 0.1 +0.05 =0.15

Since fraction of patients cured with the new medicine is 20%, the null hypothesis is rejected.

Since we are considering only one standard deviation for margin of error, the significance level of the result is (1-0.68)/2 =0.1587

Part B

Under this condition, the rejection of null hypothesis leads to Type I error. Thus, the significance level increases.