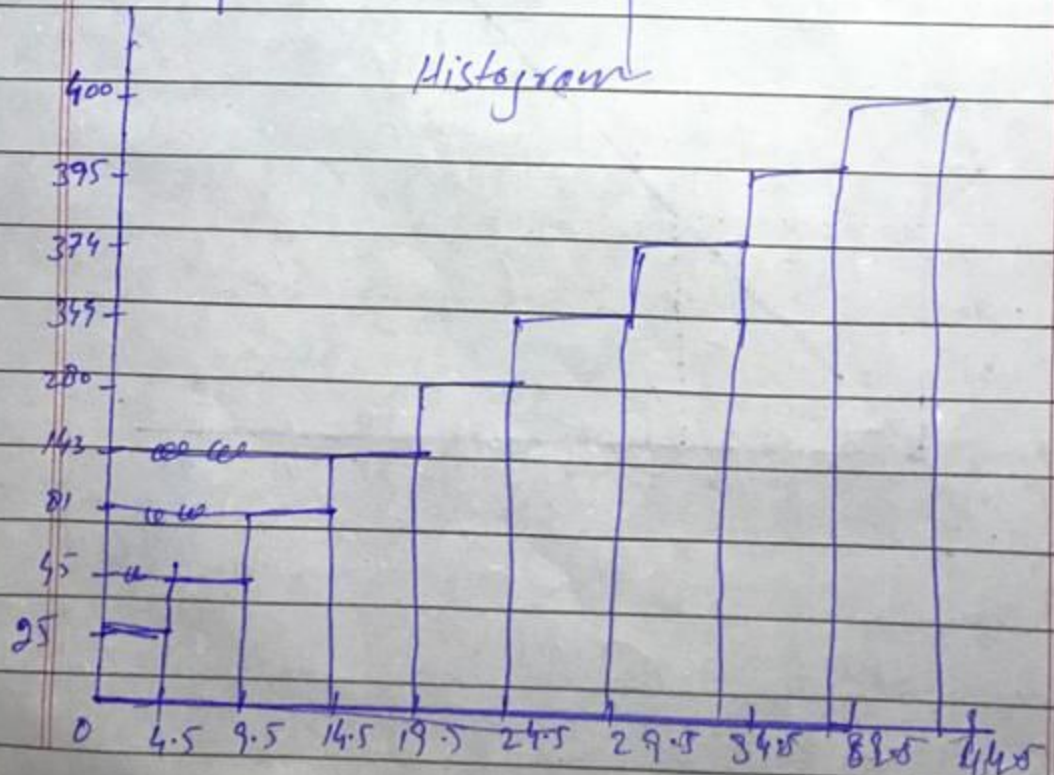
While Student go to School. approximatly 200 Student take less than 18 minutes.

Part - B

C.I	Frequency	C.B
0-4	25	0.05 - 4.5
5-9	45	4.5 - 9.5
10-14	81	9.5 - 14.5
15-19	143	14.5 - 19.5
20-24	280	19.5 - 24.5
25-29	349	24.5 - 29.5
30-34	374	29.5 - 34.5
35-39	395	34.5 - 39.5
40-44	400	39.5 - 44.5

Histogram



Question No:- 2

ANSWER = 2

Construct grouped distribution Table

423, 368, 387, 411, 393, 394, 371, 377 389, 405, 392, 408, 431, 401 363, 391, 405, 382, 400, 400 381, 399, 415, 428, 420 396, 372 410, 419, 386,

Total no = 30

Smallest no = 362

Largest no = 431

R = 431 − 362 = 69

Class interval

$K = 1 + 3.331 \log 30$

$K = 1 + 3.33 (1.47)$

$K = 1 + 4.8951$

$K = 5.8951$

$K = 6$

Class width

$h = R/K$

$= 69/6$

$= 11.5$

Class	F	Midterm	F·X
362-372	4	367	1468
373-383	3	378	1134
384-394	8	389	3112
395-405	5	400	2000
406-416	5	411	2055
417-427	3	422	1266
428-438	2	438	866
	30		11901

$\bar{x} = \frac{\Sigma fx}{\Sigma f}$ = Mean $\bar{x} = \frac{11901}{30} = 396.7$

Mode:-

Class	F	M.d
368-372	4	361.5 - 372.5
373-383	3	372.5 - 383.5
384-394	8	383.5 - 394.5 → Mode
395-405	5	394.5 - 405.5
406-416	5	405.5 - 416.5
417-427	3	416.5 - 427.5
428-439	2	427.5 - 439.5

$$\text{Mode} = l + \frac{(f_m - f_1) \times h}{(f_m - f_1) + (f_m + f_2)}$$

$$\text{Mode} = 383.5 + \frac{(8-3) \times 11}{(8-3) + (8-5)}$$

Mode = 383.5 + 3.05

Mode = 386.55

2nd page 4 number

Date Page 4 Day M T W T F S

Quartiles

$$Q_r = l + \frac{rN - C_f}{f_q} \times i$$

Class	F	C.F
362-372	4	4
373-383	3	7
384-394	8	15
395-405	5	20
406-416	5	25
417-427	3	28
428-439	2	30

$$Q_1 = \frac{1N}{4} = \frac{1 \times 30}{4} = 7.5$$

$l = 384$, $C_f = 7$ $f_q = 8$ $i = 10$

$$Q_1 = 384 + \frac{7.5 - 7}{8} \times 10$$

$Q_1 = 384$

Q2 $l = 384$, $C_f = 7$ $f_q = 8$, $i = 10$

$$384 + \frac{15 - 7}{8} \times 10$$

$Q_2 = 894$

MAROOF

Date [ ][ ][ ][ ][ ][ ][ ][ ] (3rd part of page 4) Day M T W T F S

$$Q_3 = \frac{3N}{4} = \frac{3 \times 30}{4} = 22.5$$

$l = 406, \; cf = 20, \; f = 5, \; i = 10$

$$406 + \frac{22.5 - 20}{5} \times 10$$

$$\boxed{Q_3 = 411}$$

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BS // Software Engineering

Section – B

Semester = 4th

Question 3

Answer

it depends. if you are searching for a necessary relationship between the two parameters. none exists.

However, for certain families of distributions (and particularly in single-parameter families) there is a necessary relationship for that family. The most famous example is the poisson (λ) family where mean and variance are equal. in this case $\alpha = \sqrt{\mu}$

in the binomial (n,p) family the mean is $\mu = np$ and the variance is $\alpha^2 = np(1-p)$ so in this case the relationship is $p = 1 - \frac{(\alpha)^2}{\mu}$.

Date Day M T W T F S

Question 4

Ans

Class	F	x	$(x-\bar{x})$	$(x-\bar{x})^2$	$f(x-\bar{x})^2$
64-84	15	74	-49.14	2414.7	36220.5
85-104	18	94.5	-28.69	820.2	14763.6
105-124	27	114.5	-8.64	74.6	2015.2
125-144	10	134.5	11.36	129.0	1290
145-164	6	154.5	31.36	129	774
165-184	5	174.5	51.36	983.4	4917
185-204	13	194.5	71.36	5092.2	66198.6
	94				

$\Sigma f(x-\bar{x}) = 126,178$

$\Sigma f = 94$

$$\bar{x} = \frac{\Sigma fx}{\Sigma f}$$

$$\bar{x} = (15)(74) + (18)(94.5) + (27)(114.5) + (10)(134.5) + (6) + (154 + (5) + (174.5) + (13)(194.5)$$

$$\bar{x} = \frac{1110 + 1701 + 3091.5 + 1345 + 927 + 872.5 + 2523}{94}$$

$$\bar{x} = \frac{11575.5}{94} \qquad \bar{x} = 123.14$$

NOW $s^2 = \frac{\Sigma f(x-\bar{x})^2}{\Sigma f}$ $\quad s^2 = \frac{126,178.9}{94}$

$s^2 = 1342.3$ $\quad s = \sqrt{s^2} = \sqrt{1342.3}$

$s = 36.64$

Date Page - 1 Day M T W T F S

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BS (SE) Section-B
Prob & Statistic

Question No :- 1

"Part A"

Time Taken	5	10	15	20	25	30	35	40	45
Frequency	25	45	81	143	280	349	374	395	400
Commulative frequency	25	70	151	294	574	923	1297	1692	2092