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Id : 14455 (Bscs 4th)

Assign : David sir (probability)

Q1
A

Class intervals	Freq	class boundaries	c.f <	c.f >
0-4	25	0 - 4.5	25	2092
5-9	45	4.5 - 9.5	70	2067
10-14	81	9.5 - 14.5	151	2022
15-19	143	14.5 - 19.5	294	1941
20-24	280	19.5 - 24.5	574	1798
25-29	349	24.5 - 29.5	923	1518
30-34	374	29.5 - 34.5	1297	1169
35-39	395	34.5 - 39.5	1692	795
40-44	400	39.5 - 44.5	2092	400

C.B = $\Delta = \text{LCL of 2nd class} - \text{UCL of 1st class}$

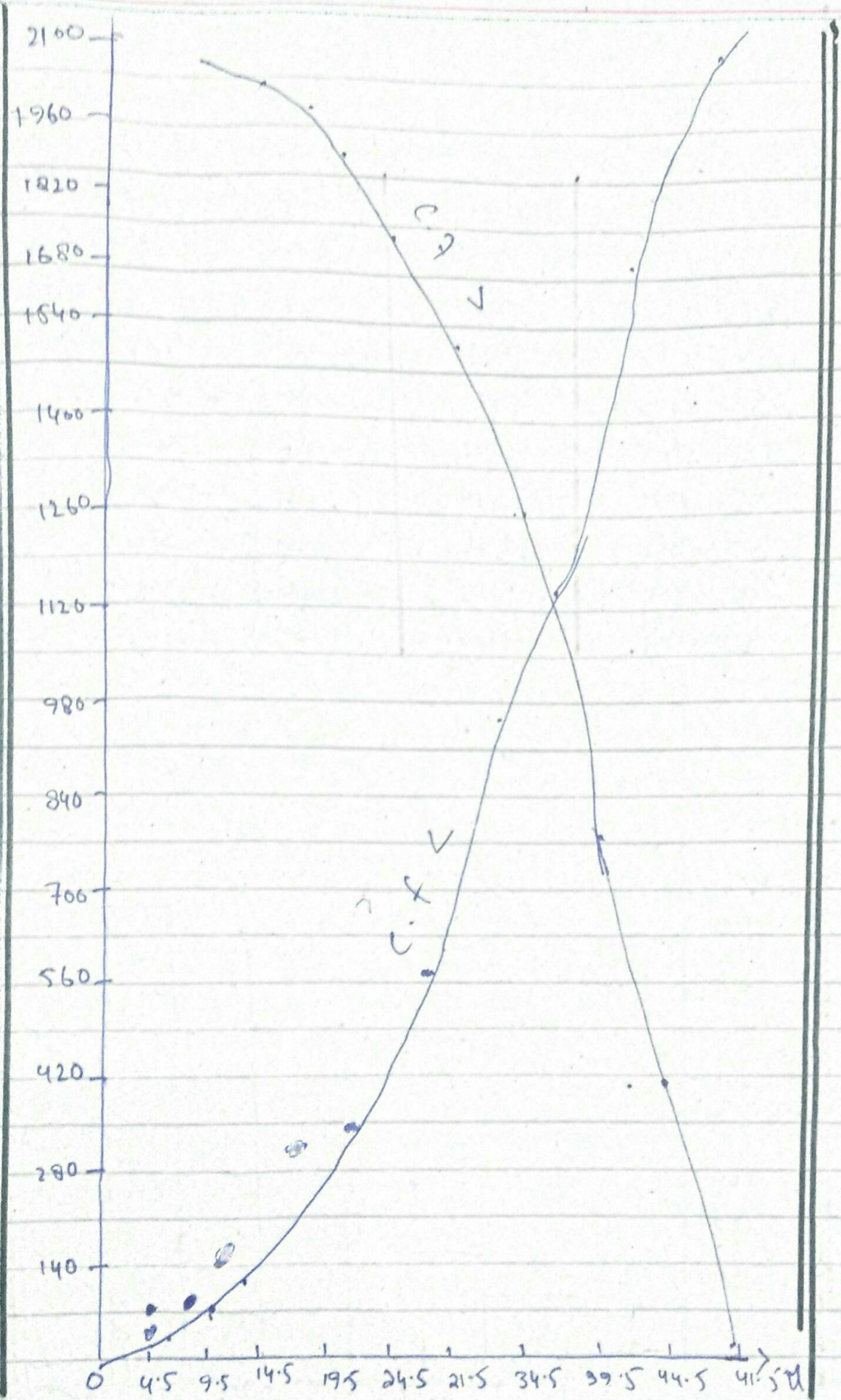
$$\text{C.B} = 5 - 4$$

$$\text{C.B} = 1$$

$$\text{C.B} = \frac{\Delta}{2}$$

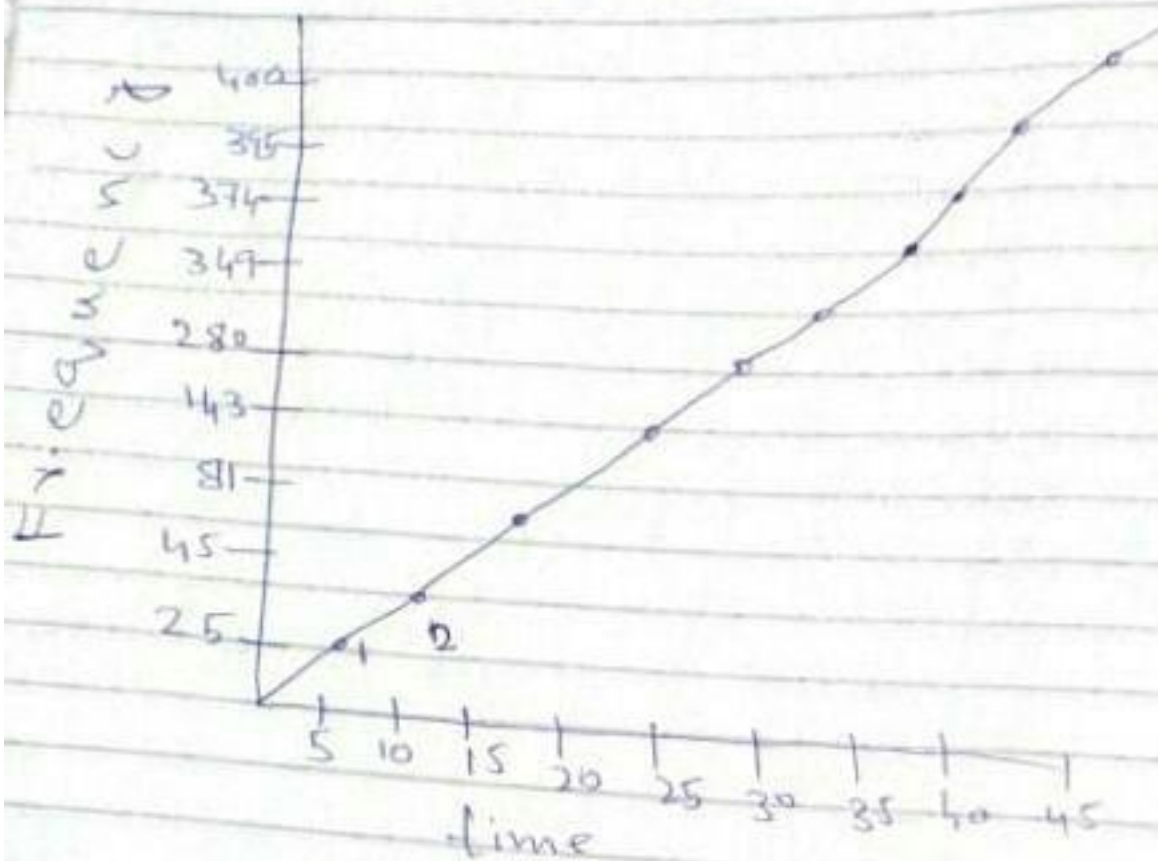
$$\text{C.B} = 0.5$$

Graph - p-t-o



C. B

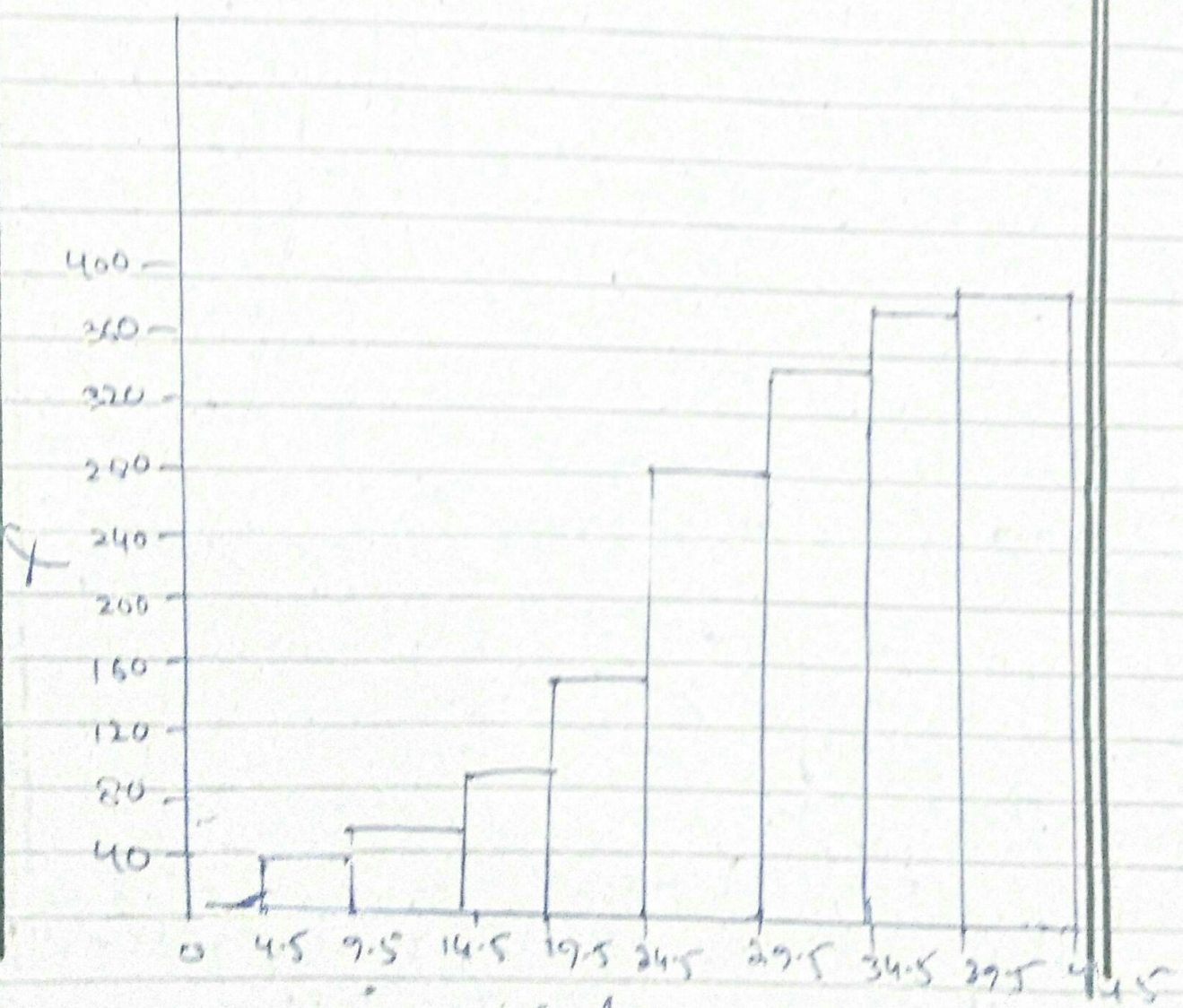
Commulative frequency graph



only 2 Students take less than 18 minute time.

6

class interval	Frequency	class boundaries
0 - 4	25	-0.5 - 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	220	19.5 - 24.5
25 - 29	349	24.5 - 29.5
30 - 34	374	29.5 - 34.5
35 - 39	375	34.5 - 39.5
40 - 44	406	39.5 - 44.5



C.D

Question 2:

Sol:-

Step 1:-

$$\text{Total number} = N$$

$$N = 30$$

Step 2:-

$$\text{maximum } x_m = 431 \quad \text{minimum } x_o = 363$$

Step 3:-

Range:

$$R = x_m - x_o$$

$$= 431 - 363$$

$$= 68$$

Step 4:-

No of classes:

$$k = 1 + 3.33 \log(N)$$

$$k = 1 + 3.33 \log(30)$$

$$k = 1 + 3.33 (1.47)$$

$$k = 5.92 = 6$$

Step 5:-

$$h = R/k$$

$$h = 68/6 = 11.33 = 12$$

table p. t. 7

Classes	F	C.B	n (of c.m)	C.F <	Tally
363 - 374	4	362.5 - 374.5	368.5	4	
375 - 386	4	374.5 - 386.5	380.5	8	
387 - 398	8	386.5 - 398.5	392.5	16	
399 - 410	7	398.5 - 410.5	404.5	23	
411 - 422	4	410.5 - 422.5	416.5	27	
423 - 434	3	422.5 - 434.5	428.5	30	

Mean:-

$$\bar{x} = \frac{\sum f_i \cdot x_i}{n}$$

$$\bar{x} = \frac{11919}{30}$$

$$\bar{x} = 397.3$$

$f_i \cdot x_i$

1474

1522

3140

2831.5

1666

1285.5

11,919

Mode

$$M = l_1 + \frac{f_1 - f_0}{2 \cdot f_1 - f_0 - f_2} \cdot (l_2 - l_1)$$

$$M = 386.5 + \frac{8-4}{2(8)-4-7} \cdot (398.5 - 386.5)$$

$$M = 386.5 + \frac{4}{16-11} \cdot (12)$$

$$M = 386.5 + \frac{4}{15} \cdot (12)$$

$$M = 386.5 + 9.6$$

$$M = 396.1$$

Quartiles:-

$$Q_1 = n/4$$

$$Q_1 = 30/4 = 7.5$$

$$Q_1 = l + \frac{h}{f} (Q_1 - c)$$

$$Q_1 = 374.5 + 12/4 (7.5 - 4)$$

$$Q_1 = 374.5 + 3(3.5)$$

$$Q_1 = 374.5 + 10.5$$

$$Q_1 = 385$$

$$Q_3 = l + \frac{h}{f} (Q_3 - c)$$

$$Q_3 = 398.5 + 12/7 (22.5 - 16)$$

⑩

$$Q_3 = 398.5 + 12/7 (6.5)$$

$$Q_3 = 34/4$$

$$Q_3 = 398.5 + 11/4$$

$$Q_3 = 3(30)/4$$

$$Q_3 = 409.64$$

$$Q_3 = 90/4$$

$$Q_3 = 22.5$$

Q3

First set: 3, 6, 2, 1, 7, 5

Mean = $\frac{\text{Sum of all number}}{\text{total no}}$

$$M = \frac{24}{6} = 4$$

$$S.D = \sqrt{\frac{\sum x_i^2}{N} - \left(\frac{\sum x_i}{N}\right)^2}$$

$$S.D = \sqrt{\frac{124}{6} - \frac{576}{36}}$$

$$= \sqrt{\frac{744 - 576}{36}}$$

$$S.D = \sqrt{\frac{168}{36}}$$

$$S.D = \sqrt{4.67}$$

$$S.D = 2.16$$

x	x ²
3	9
6	36
2	4
1	1
7	49
5	25
<u>24</u>	<u>124</u>

2nd set: 11, 17, 9, 7, 19, 15

$$\text{Mean} = \frac{78}{6} = M = 13$$

$$S.D = \sqrt{\frac{\sum x_i^2}{N} - \left(\frac{\sum x_i}{N}\right)^2}$$

$$S.D = \sqrt{\frac{1126}{6} - \frac{6084}{36}}$$

x	x ²
11	121
17	289
9	81
7	49
19	361
15	225
<u>78</u>	<u>1126</u>

$$s.d. = \sqrt{\frac{6756 - 6084}{36}}$$

$$= \sqrt{\frac{672}{36}}$$

$$= \sqrt{18.67}$$

$$s.d. = 4.32$$

First set mean = 4

" " s.d. = 2.16

2nd set mean = 13

" " s.d. = 4.32

Means s.d. of 2nd set is greater than first set

- prob

class	f	x	x ²	fi x	fi x ²
64-84	15	74	5476	1110	82,140
85-104	18	94.5	8930.25	1701	160,744.5
105-124	27	114.5	13110.25	3091.3	353,976.75
125-144	10	134.5	18090.25	1345	180,902.5
145-164	6	154.5	23870.25	927	143,221.5
165-184	5	174.5	30450.25	872.5	152,251.25
185-204	13	194.5	37830.25	2528.5	491,793.25
	<u>94</u>			<u>11,575.5</u>	<u>1565029.75</u>

$$s^2 = \frac{\sum f x^2}{n} - \left(\frac{\sum f x}{n} \right)^2$$

$$s^2 = \frac{1565029.75}{94} - \left(\frac{11,575.5}{94} \right)^2$$

$$s^2 = \frac{1565029.75}{94} - \frac{(133,992,200.25)}{8836}$$

$$s^2 = 16649.25 - 15164.35$$

$$s^2 = 1484.9$$

For standard deviation taking square root on both side.

$$\sqrt{s^2} = \sqrt{1484.9}$$

$$s = 38.54$$

Q:-

Q1: No if average depth of river is 5 feet then it is not obvious that every person of height 5 feet cross it. If they can't know how to swim then? they will drown.

The fact is that a river of average depth of 5 feet is not deep. It is 2 feet at some point while at some point it is 7 feet. So for a 5 foot person is drown when he goes to the point where river is 6 feet or 7 feet.

b:- No, it doesn't mean that every student is hopeless, average means maximum but we have still remains the minimum students, may be maximum due to which average was made may be hopeless, but it minimum there may be students who get full marks so we can't say all are hopeless.

c:- No, it is not what it looks like, average is dividend means many or doesn't mean everyone get paid same. May be the king's income will be much more than the students.