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Sahi Prep Hai Toh Life Set Hai

DATA INTERPRETATION

[PART – 1]

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Agenda

* Theory & Basic Concepts → (40 - 42) min

* { Tables → 3 sets
  { Line Graph → 1 set]

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DATA INTERPRETATION

How you interpret a data?

(1) Understand
(2) Organize
(3) Conclusion

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CONCEPTS WHICH ARE USED IN DATA INTERPRETATION

+ Basic Concepts of Arithmetic

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1. PERCENTAGE AND ITS APPLICATION

(i) 12% of 450 → $\frac{12}{\cancel{100}} \cdot \frac{9}{\cancel{450}} \rightarrow 54$

(ii) A got 20% marks → 20% → Max Marks

(iii) A is what % of B?

A is what % more than B?

$\frac{A}{B} \times 100$ $\qquad$ $\frac{A-B}{B} \times 100$

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Eg. A B

780 360

A is what % more than B?

A : B

13 : 6

$\frac{7}{6} \times 100$

$116\frac{2}{3}\%$

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FRACTION TO PERCENTAGE VALUES

$$\frac{1}{1} = 100\%$$

$$\frac{1}{2} = 50\%$$

$$\frac{1}{3} = 33\frac{1}{3}\% \ (33.33\%)$$

$$\frac{1}{4} = 25\%$$

$$\frac{1}{5} = 20\%$$

$$\frac{1}{6} = 16\frac{2}{3}\% \ (16.66\%)$$

$$\frac{1}{7} = 14\frac{2}{7}\% \ (14.28\%)$$

$$\frac{1}{8} = 12\frac{1}{2}\% \ (12.5\%)$$

$$\frac{1}{9} = 11\frac{1}{9}\% \ (11.11\%)$$

$$\frac{1}{10} = 10\%$$

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$$\frac{1}{11} = 9\frac{1}{11}\% \ (9.09\%)$$

$$\frac{1}{12} = 8\frac{1}{3}\% (8.33\%)$$

$$\frac{1}{13} = 7\frac{9}{13}\% \ (7.69\%)$$

$$\frac{1}{14} = 7\frac{1}{7}\% (7.14\%)$$

$$\frac{1}{15} = 6\frac{2}{3}\% \ (6.66\%)$$

$$\frac{1}{16} = 6\frac{1}{4}\% \ (6.25\%)$$

$$\frac{1}{17} = 5\frac{15}{17}\% \ (5.88\%)$$

$$\frac{1}{18} = 5\frac{5}{9}\% \ (5.55\%)$$

$$\frac{1}{19} = 5\frac{5}{19}\% \ (5.26\%)$$

$$\frac{1}{20} = 5\%$$

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Eg. X Y

28% of 720 16% of 350

X is what % more than Y?

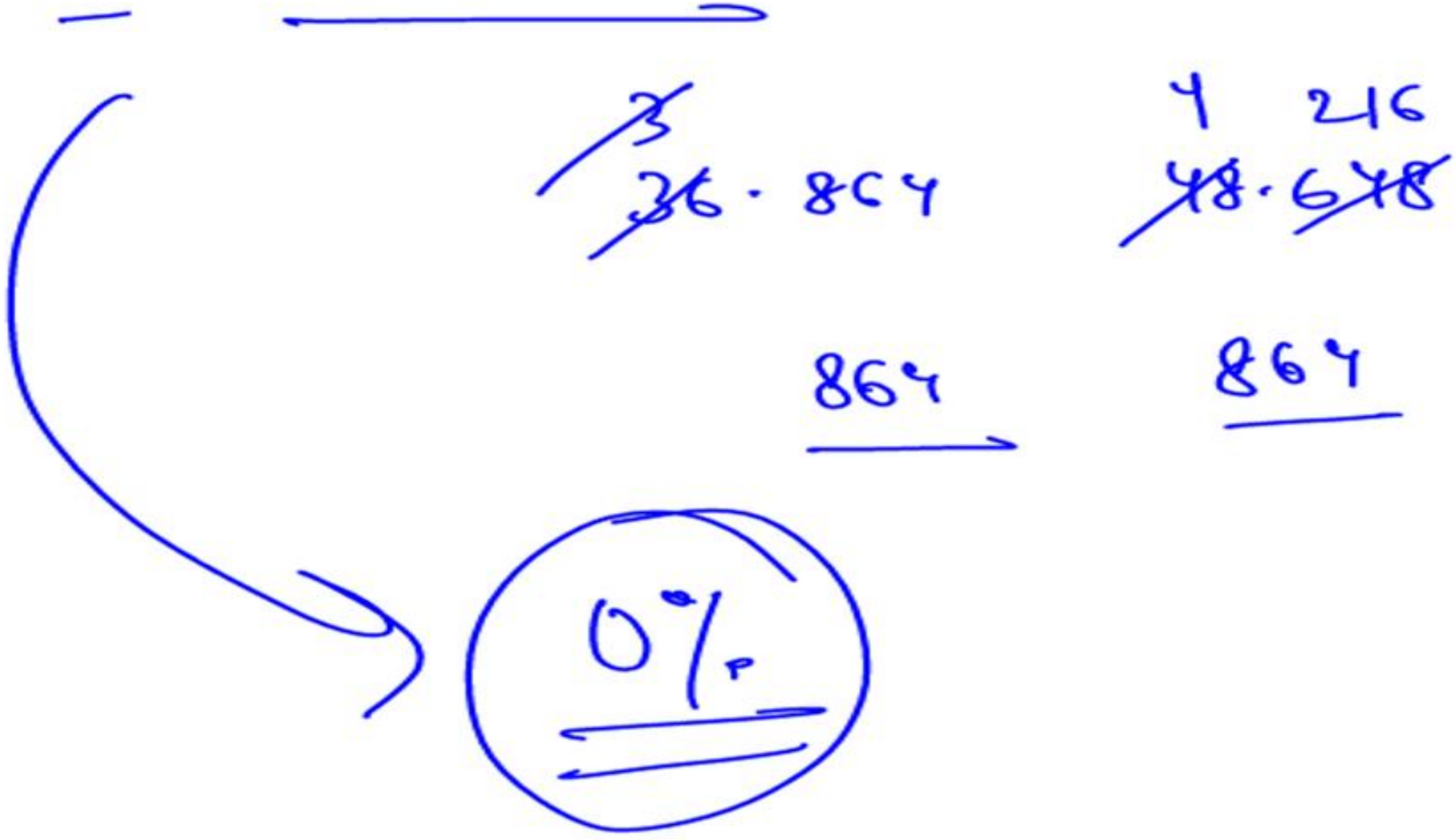
$$\frac{X}{28\% \text{ of } 720} : \frac{Y}{16\% \text{ of } 350} = 18 : 5$$

$$\frac{13}{5} \times 100 = 260\%$$

Eg. A B

36% of 864 48% of 648

A is what % more than B?



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Successive % Change

$$X + Y + \frac{XY}{100}$$

↑ 20% ↑ 10%

I $20 + 10 + \frac{20 \cdot 10}{100} = 32\%$

II More Value OR Fraction → always operate on Ratio

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Eg. $\uparrow 16\frac{2}{3}\%$ $\uparrow 25\%$ $\downarrow 12\frac{1}{2}\%$ $\downarrow 14\frac{2}{7}\%$ $\uparrow 20\%$

$16\frac{2}{3}\% \left(\frac{1}{6}\right)$

$25\% \left(\frac{1}{4}\right)$

$12\frac{1}{2}\% \left(\frac{1}{8}\right)$

$14\frac{2}{7}\% \left(\frac{1}{7}\right)$

$20\% \left(\frac{1}{5}\right)$

~~6~~	7
24	~~8~~
8	~~7~~
~~7~~	~~6~~
~~5~~	~~6~~ 3
16	21

$\frac{5}{16} \times 100$

$= 31\frac{1}{4}\%$

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FRACTION COMPARISON

A B C D E

$\frac{2}{3}, \frac{5}{8}, \frac{4}{7}, \frac{4}{9}, \frac{5}{11}$

I Calculating values

$\frac{2}{3} \rightarrow 0.66$

$\frac{5}{8} \rightarrow 0.625$

$\frac{4}{7} \rightarrow 0.57$

$\frac{4}{9} \rightarrow 0.44$

$\frac{5}{11} \rightarrow 0.45$

$D < E < C < B < A$

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Eg. I II

$$\frac{43}{67} \quad \frac{7}{11}$$

Which is greater?

473 469

I st. is greater

I II

$\frac{a}{b} \quad \frac{c}{d}$

If $ad > bc$ I st is greater

$ad < bc$ II nd is greater

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Eg.

I	II
$\frac{576}{789}$	$\frac{699}{892}$

Which is greater?

$\frac{58\phi}{79\phi} \times \frac{70\phi}{89\phi}$

58.89 79.70

58.90

52^{2^0}

< 5530

I is greater

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Eg. Arrange the numbers in ascending order.

A B C D

$\frac{23}{29}, \frac{29}{35}, \frac{17}{23}, \frac{19}{25}$

$\frac{a}{b}$ → Fraction

$\frac{17}{23} < \frac{19}{25} < \frac{23}{29} < \frac{29}{35}$

$0 < a < b$

x → +ve

$\frac{a}{b} < \frac{a+x}{b+x}$

C < D < A < B

eg $\frac{3}{5} < \frac{3+1}{5+1}$

$0.6 < 0.66$

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CONCEPT OF RATIO

Comparison – Ratio

% – Ratio

Eg. If A : B = 2 : 3 B : C = 4 : 5 A : B : C = ??

A : B

B : C

A : B : C 8 : 12 : 15

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AVERAGE

Find the average.

73, 84, 87, 89, 76, 78, 85, 83

$$\text{Average} = \frac{\text{Sum of all values}}{\text{No. of values}}$$

I $$\frac{73 + 84 + 87 + 89 + 76 + 78 + 85 + 83}{8}$$

$$= \frac{655}{8} = 81.875$$

II nd Let Avg = 80

$-7 + 4 + 7 + 9 - 4 - 2 + 5 + 3$

$\frac{15}{8} = 1.875$

81.875

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CONCEPT OF WEIGHTED AVERAGE

	Physics	Chemistry	Maths
	83	89	78
Credit	3	6	1

$$\frac{83 \cdot 3 + 89 \cdot 6 + 78 \cdot 1}{10}$$

$$\frac{249 + 534 + 78}{10} = \frac{861}{10}$$

$$86.1$$

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Income → SP

Expenditure → CP

Eg. If Income = 20,000

Find expenditure

SP

CP

Profit = 25%

25% $\left(\frac{1}{4}\right)$ → Profit

→ CP

SP = 5

CP = 16000

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What steps you have to follow to solve SSC DI

1. Read the information given (very fast)
Title, Footnotes, Units

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Types of DI

1. Table

No. of subscribers (in Lakhs)

Service Provider	2015	2016	2017	2018
Airtel	75	84	70	20
Jio	5	20	150	800
Vodafone-Idea	60	50	30	3
MTNL	500	100	20	0.4

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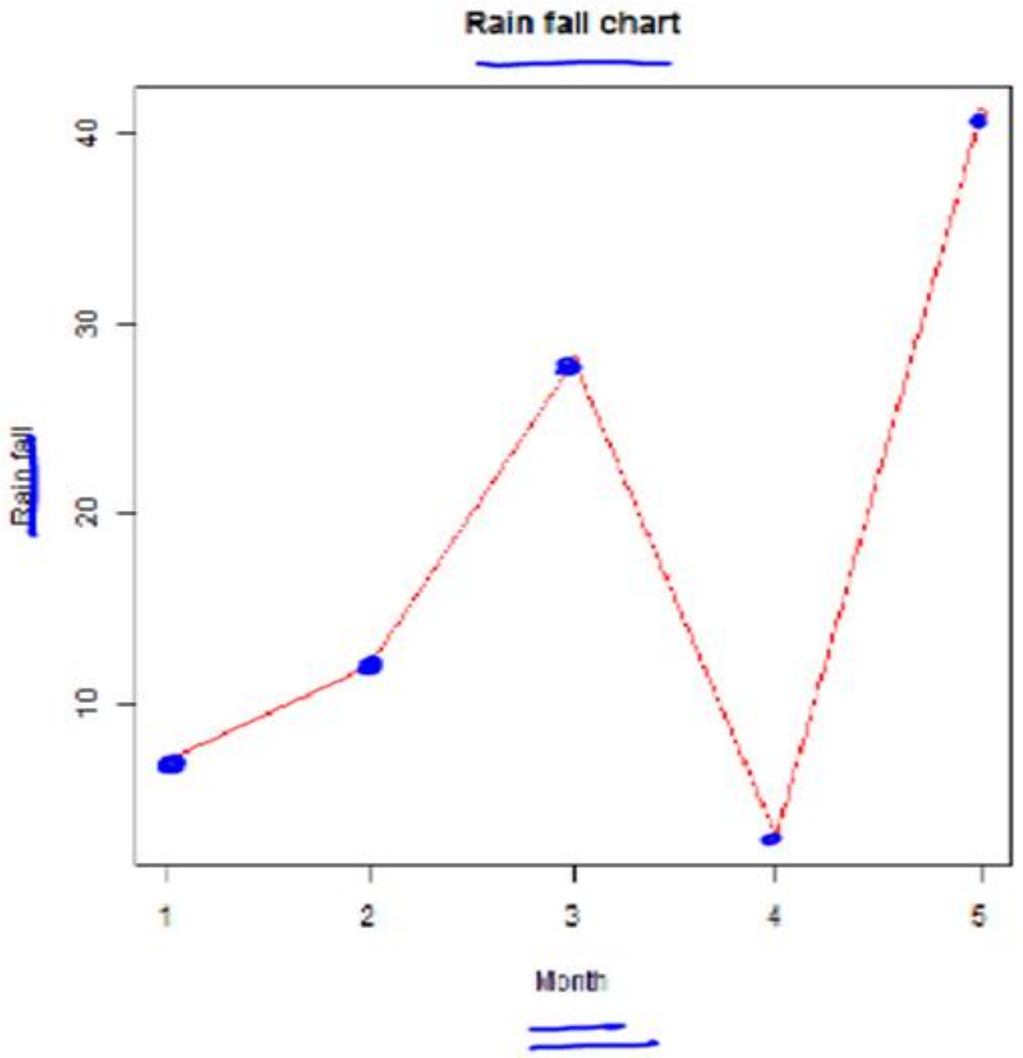
2. LINE GRAPH



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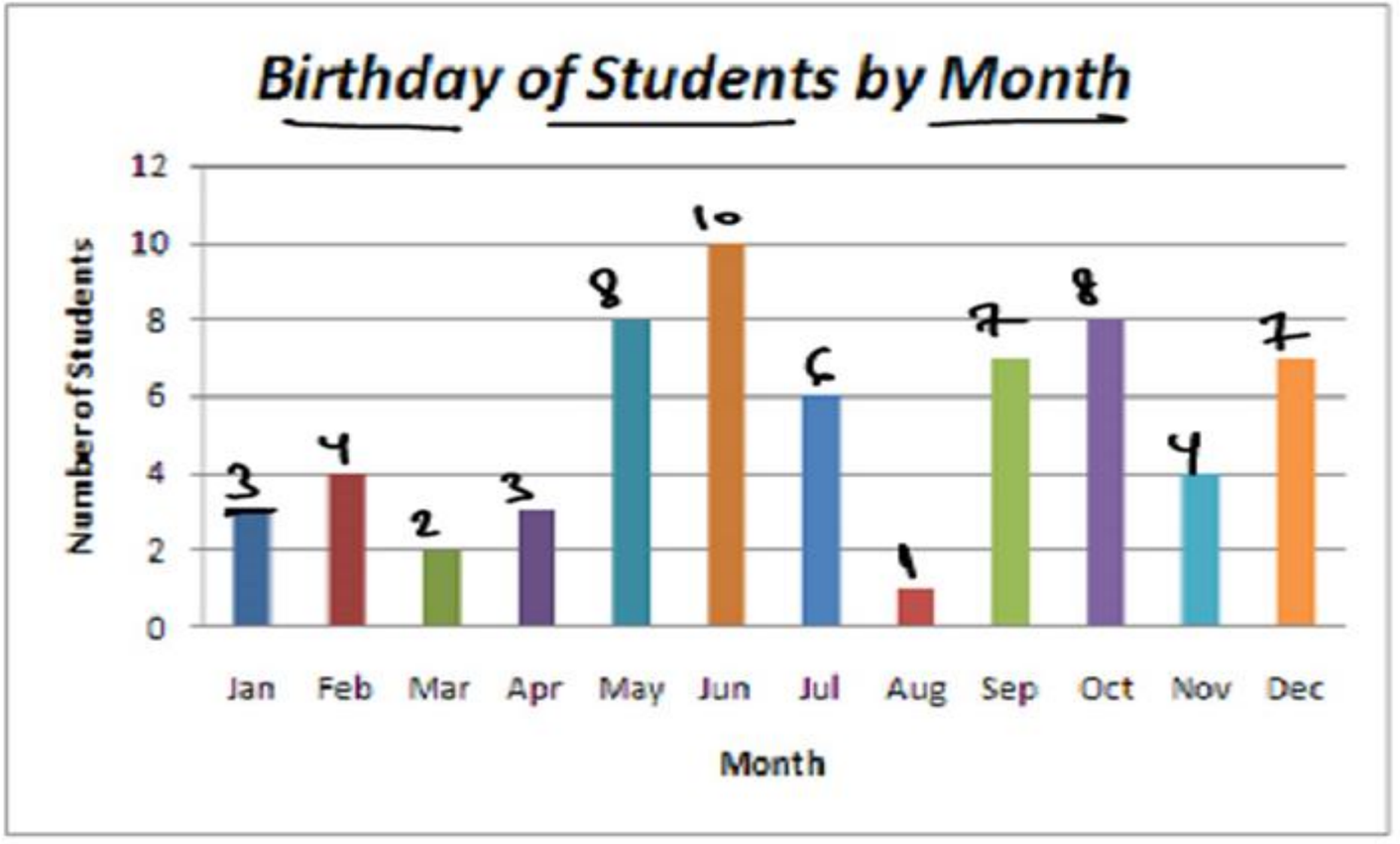
3. BAR GRAPH

Height of Bar → Represent value

width → not imp



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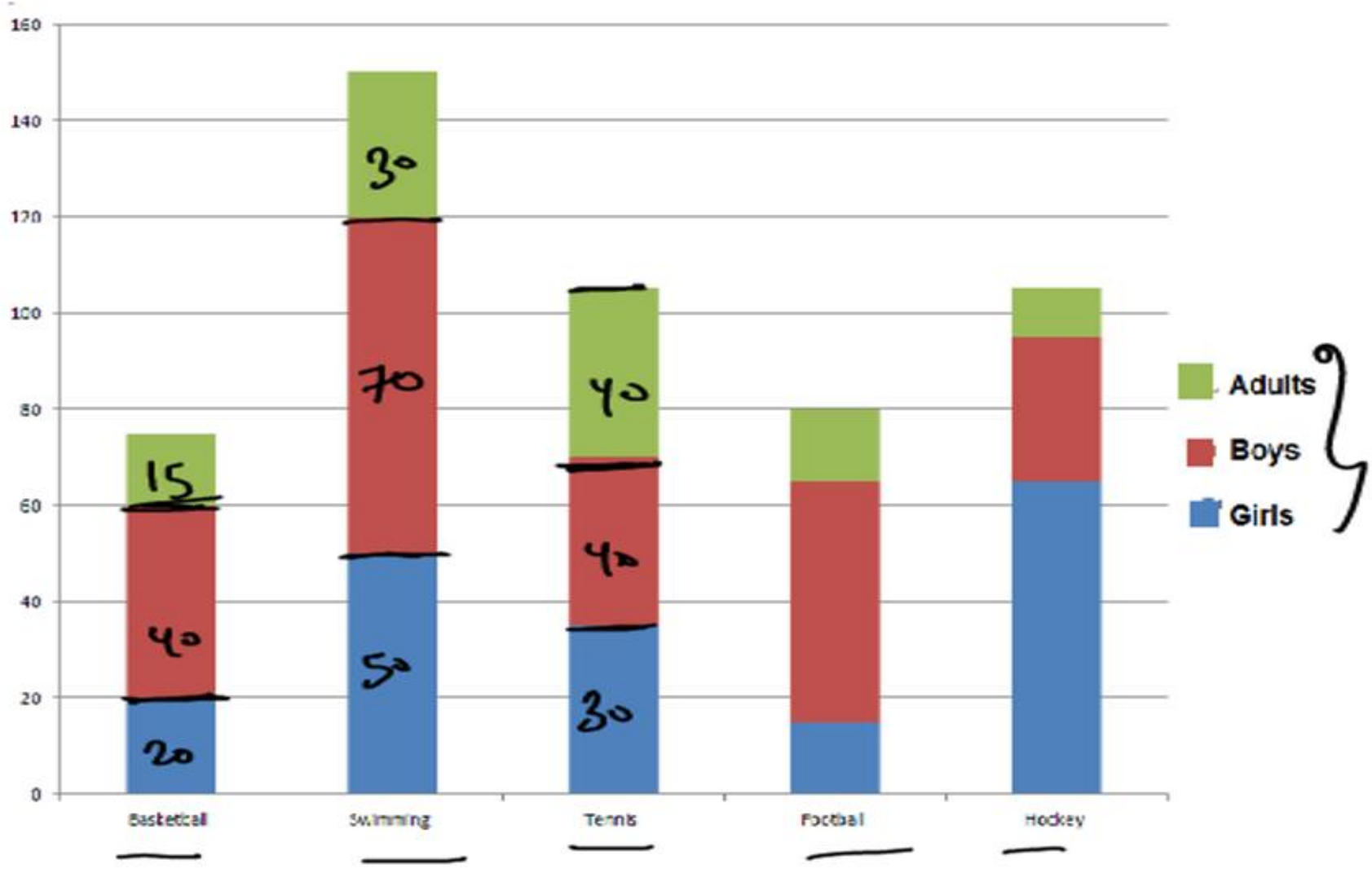
4. CUMULATIVE BAR GRAPH



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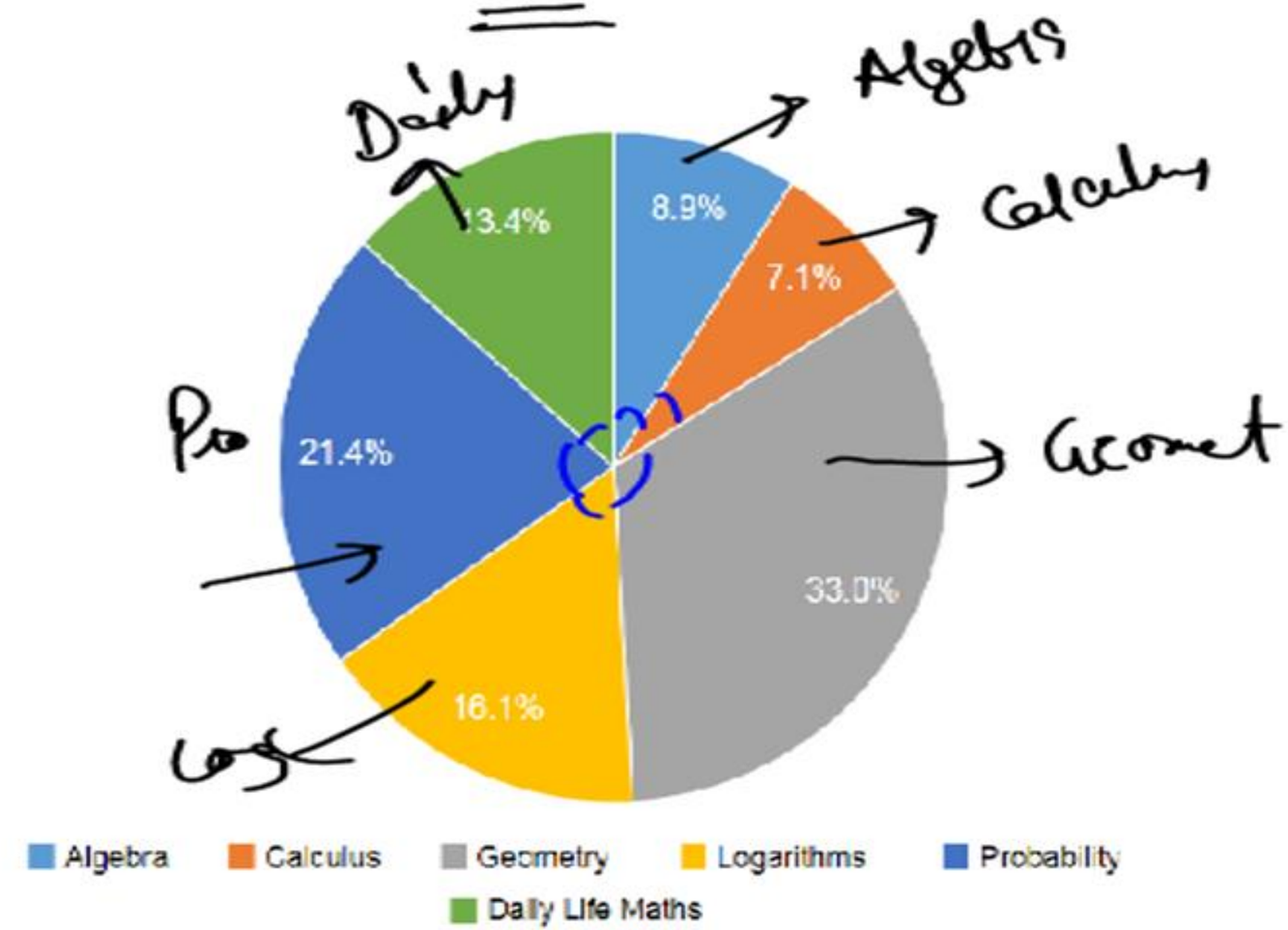
5. PIE CHART

The pie chart given below represents the preference of the students choosing different areas for their thesis and the total number of students are 200.



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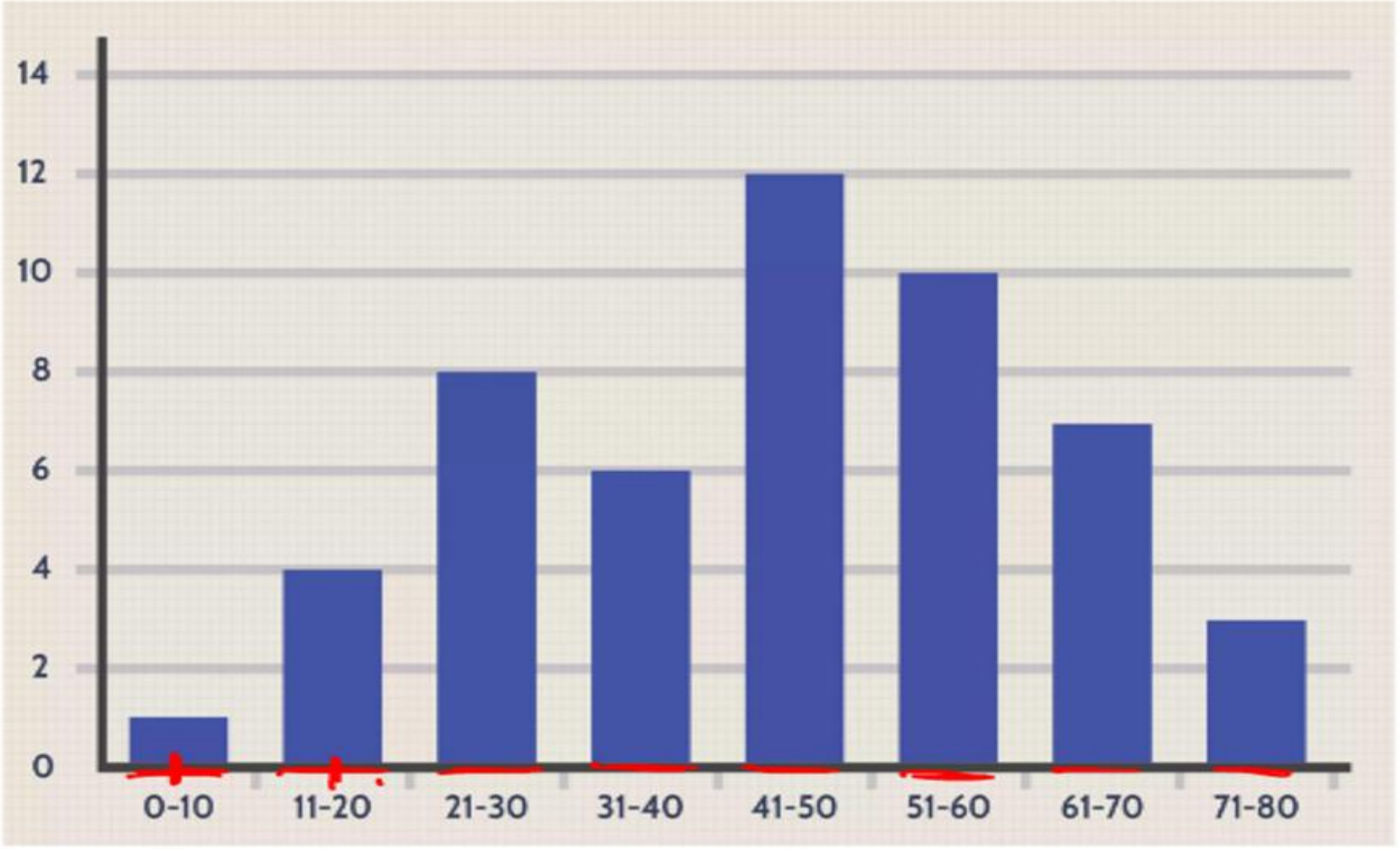
6. HISTOGRAM



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7. MIXED GRAPH

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PRACTICE QUESTIONS

1. Table

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Directions (Q.1-4) : The percentage marks obtained by seven students in six different subjects:

Time → 3 min

Subject → / Student ↓	A (Out of 75)	B (Out of 150)	C (Out of 100)	D (Out of 50)	E (Out of 150)	F (Out of 75)
P	85	68	76	92	89	82
Q	78	72	84	80	64	70
R	66	75	79	88	72	66
S	74	62	91	74	70	74
T	90	75	67	68	69	78
V	86	80	69	78	82	80
W	82	68	81	85	76	72

Note : Maximum marks for each subject is given in the brackets

1. What total percentage marks R did secure in all the six subjects together?

(a) 75.73 (b) 74.33
(c) 73.75 (d) 74.75

3, 75 A 66% −9 −27
6, 150 B 75% 0 0
4, 100 C 79% +4 +16
2, 50 D 88% +13 +26
6, 150 E 72% −3 −18
3, 75 F 66% −9 −27

Average % → 75

−72+42 = −30

$\frac{-30}{24} = -1.25$

73.75%

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Ans. (c)

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Directions (Q.1-4) : The percentage marks obtained by seven students in six different subjects:

Time 90sec

Subject → / Student ↓	A (Out of 75)	B (Out of 150)	C (Out of 100)	D (Out of 50)	E (Out of 150)	F (Out of 75)
P	85	68	76	92	89	82
Q	78	72	84	80	64	70
R	66	75	79	88	72	66
S	74	62	91	74	70	74
T	90	75	67	68	69	78
V	86	80	69	78	82	80
W	82	68	81	85	76	72

Note : Maximum marks for each subject is given in the brackets

2. What is the difference between the marks obtained by P and T in the subjects B, D and E together in the same subjects?

(a) 32.5 (b) 31.5

(c) 37 (d) 34

50 marks → 1 unit

P

68% 92% 89

T

75% 68% 69

63% of 50

= 31.5

3 B (150) D (50) 1 E (150 3

−7% × 3 + 24% × 1 + 20% × 3

63%

=

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Ans. (b)

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Directions (Q.1-4) : The percentage marks obtained by seven students in six different subjects:

75 sec

Subject → / Student↓	A (Out of 75)	B (Out of 150)	C (Out of 100)	D (Out of 50)	E (Out of 150)	F (Out of 75)
P	85	68	76	92	89	82
Q	78	72	84	80	64	70
R	66	75	79	88	72	66
S	74	62	91	74	70	74
T	90	75	67	68	69	78
V	86	80	69	78	82	80
W	82	68	81	85	76	72

Note : Maximum marks for each subject is given in the brackets

3. What is the average marks obtained by all the students in subject B? (upto 2 decimal place)

(a) 107.14 (b) 71.4
(c) 114.07 (d) 73.14

Average %

68 → −2
72 → +2
75 → +5
62 → −8
75 → +5
80 → +10
68 → −2

$\left(70 + \frac{10}{7}\right)\%$ of 150

$\frac{500}{7} \times \frac{1}{100} \times 150$

$\frac{750}{7} = 107.$

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Ans. (a)

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Directions (Q.1-4) : The percentage marks obtained by seven students in six different subjects:

Time → 60sec

Subject → / Student↓	A (Out of 75)	B (Out of 150)	C (Out of 100)	D (Out of 50)	E (Out of 150)	F (Out of 75)
P	85	68	76	92	89	82
Q	78	72	84	80	64	70
R	66	75	79	88	72	66
S	74	62	91	74	70	74
T	90	75	67	68	69	78
V	86	80	69	78	82	80
W	82	68	81	85	76	72

Note : Maximum marks for each subject is given in the brackets

4. What is the total marks obtained by all the students in subject F?

(a) 422 (b) 398.5

(c) 522 (d) 391.5

52 2%

261

522

10 = 4 2

× 3 3

$\frac{783}{2} = 391.5$