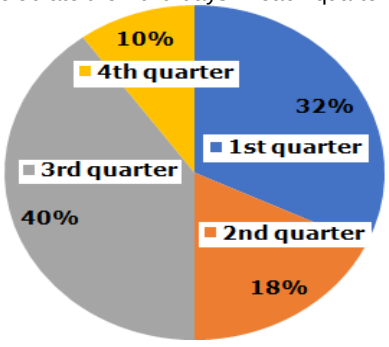
DI Test 3 & 5

SET 1. Study the following data carefully and answer the questions:

The data given below is related to the number of students of a college, who celebrate their birthdays in 1st quarter (Jan – Mar), 2nd quarter (Apr – June), 3rd quarter (July – Sep) and 4th quarter (Oct- Dec) of a calendar year.

1. The pie chart given below shows the percentage distribution of the total number of students, who celebrate their birthdays in each quarter.



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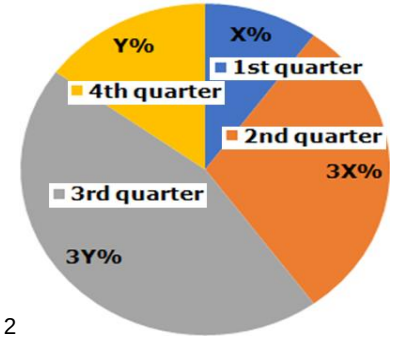

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2. The pie chart given below shows the percentage distribution of the total number of boys, who celebrate their birthdays in each quarter.

Notes: 1: The number of boys, who celebrate their birthdays in 2nd quarter, is 80 more than those, who celebrate their birthdays in 1st quarter and also 60 less than those, who celebrate their birthdays in 3rd quarter. **2:** (2Y + X)% of the number of students, who celebrate their birthdays in 3rd quarter, are girls.

1. Out of the total number of girls, who celebrate their birthdays in 1st quarter, 40% and 22.5% girls celebrate their birthdays in Jan and Feb respectively and out of the total number of girls, who celebrate their birthdays in 3rd quarter, 40% and 37.5% girls celebrate their birthdays in July and Aug respectively, then find the average number of girls, who celebrate their birthdays in Mar and Sep? 1.Can't be determined 2.46 3.51 4.41 5.56

2. Out of the total number of boys, who celebrate their birthdays in 1st quarter, (3Y + X)% boys celebrate their birthdays in Jan and Feb and out of the total number of boys, who celebrate their birthdays in 2nd quarter, (6X + Y)% boys celebrate their birthdays in Apr and May. Find that the number of boys, who celebrate their birthdays in Mar, is what per cent of those, who celebrate their birthdays in June? 1.4Y% 2.5X% 3.(4Y – X)% 4.Both (a) and (b) 5.Both (b) and (c)

3. The total number of girls, who celebrate their birthdays in 2nd, 3rdand 4thquarters, is approximately what per cent of the total number of girls in the college?

1.49% 2.53% 3.36% 4.43% 5.None of these

4. Find the ratio of the total number of boys, who celebrate their birthdays in 2nd and 4th quarters to the total number of girls, who celebrate their birthdays in 2nd and 4th quarters?

1.18: 5 2.6: 1 3.20: 9 4.10: 3 5.3: 1

SET 2: Answer the questions based on the information given below.

There are three stations NDLS, PNBE and DHN. The given data is about number of passengers handled by given three stations in three different months. The number of passengers handled by NDLS in March is 2000 more than that by PNBE in May. The number of passengers handled by PNBE in April is 25% more than that by NDLS in March. The number of passengers handled by DHN in March is equal to difference of number of passengers handled by PNBE in April and May. The number of passengers handled by DHN in May is 2500 less than that by PNBE in the same month. The number of passengers handled by NDLS in April is equal to the sum of the number of passengers handled by DHN in March and May, together. The number of passengers handled by PNBE in March is equal to difference between the number of passengers handled by NDLS and DHN, in March. The number of passengers handled by NDLS in May is 20% more than that by PNBE in March. The number of passengers handled by DHN in April is 25% less than that by PNBE in May.

5. If the number of passengers handled by DHN in March and April, together is 42500, then find the ratio of the number of passengers handled by NDLS and PNBE, in May.

A. 105:148 B. 115:248 C. 177:200 D. 181:400 E. 91:150

6. Out of total passengers handled by NDLS in given three months, 40% were females. If the number of male passengers handled by NDLS in given three months is 46200, then find the difference between the number of passengers handled by DHN in April and May.

A. 3500 B. 4000 C. 2600 D. 5400 E. None of these

7. If the number of passengers handled by PNBE in March and May, together is 38% more than that by NDLS in April, then the number of passengers handled by DHN in March is how much percent more/less than that by PNBE in May?

A. 55.85% B. 56.25% C. 32.5% D. 48.5% E. 62.5%

8. If the ratio of the number of passengers handled by NDLS in March and May is 170:141, respectively, then find the number of passengers handled by PNBE in May.

A. 25000 B. 36000 C. 42000 D. 28000 E. 32000

9. Which of the following can be determined using the given data? I. Difference between number of passengers handled by NDLS in March and that by DHN in May. **II.** Difference between number of passengers handled by PNBE and DHN, in May. **III.** Ratio of the number of passengers handled by NDLS and DHN, in April. If given statement can be determined it is marked as 'T' and if the statement cannot be determined it is marked as 'F'. Which of following is correct order for T/F of the given statements? A. T, F, T B. T, T, T C. T, T, F D. F, T, F E. None of these

SET 3: There are 300 products manufactured by factory A in which number of Ice cream and chocolates manufactured in ratio 2 : 3 and the number of 5 star and Kit - Kat chocolate manufactured in ratio 2 : 7. In factory B, total number of 5 star and Kit - Kat chocolates manufactured are 50 and 80 respectively while the total number of Ice cream and chocolates manufactured is in ratio 10 : 13. In factory C the number of Ice cream manufactured is 150 and the number of chocolates manufactured is 20% more than the number of chocolates manufactured by factory B whereas the umber of Kit - Kat and 5 star chocolates manufactured is in the ratio 7 : 5.

10. What is the overall ratio of Kit - Kat and 5 star chocolates manufactured by all three factories together? (A) 311.155 (B) 115.311 (C) 126.125 (D) 254.255 (E) None of these

11. The total number of Ice cream manufactured in all 3 factories is what % more or less than total number of Kit - Kat chocolates manufactured in all these 3 factories?

(A) 18.97% (B) 19.99% (C) 18.65% (D) 20% (E) None of these

12. Find the average number of chocolates manufactured in factory B and C together.

(A) 1123 (B) 143 (C) 156 (D) 165 (E) None of these

13. Find the total products produced in factory C.

(A) 310 (B) 306 (C) 308 (D) 320 (E) None of these

14. What is the difference between the average number of Kit - Kat chocolates manufactured in factory A and C and the total number of Ice cream manufactured in factory A?

(A) 4 : 5 (B) 3 : 8 (C) 7.5 (D) 7.6 (E) None of these

SET 4: Study the data carefully and answer the questions given beside:

Schemes	Type of Interest	Principal	% of Rate	Years	Amount
A	Simple Interest	22000	---	4	35200
B	Compound Interest	----	10%	2	30250
C	Compound interest	10000	20%	-	17280
D	Simple interest	22500	12%	-	29250
E	Compound interest	27500	16%	2	----

15. Sajal invested double money of scheme A in scheme F at C. I. and at the end of 3 years he received Rs 14564 as interest. Find the rate of interest of scheme F.

A8% B10% C12% D15% ENone of these

16. For how much time did the money invest in scheme D?

A4.5 years B5 years C2.5 years D3 years E4 years

17. If the ratio of the interest rate of scheme G to that scheme C is 5 : 4 and at the end of 2 years the interest received by a person in scheme G at simple interest is Rs 9750, find the principal.

ARs 22500 BRs 25200 CRs 15500 DRs 19500 ENone of these

18. What is the difference between the Compound interest and Simple interest of Scheme B at the end of 2 years?

ARs 300 BRs 250 CRs 350 DRs 400 ERs 500

19. What is the total interest earned by a person by investing amount in all the schemes for the time given?

ARs 45200 BRs 53620 CRs 48965 DRs 40230 ENone of these

{1 – 4}

Solution

Since, the number of boys, who celebrate their birthdays in 2nd quarter, is 80 more than those, who celebrate their birthdays in 1st quarter.

So, the number of boys, who celebrate their birthdays in 1st quarter:

80 × X/(3X-X)=40

The number of boys, who celebrate their birthdays in 2nd quarter:

80 × 3X/(3X-X)=120

Since, the number of boys, who celebrate their birthdays in 2nd quarter, is 60 less than those, who celebrate their birthdays in 3rd quarter:

So, the number of boys, who celebrate their birthdays in 3rd quarter = 120 + 60 = 180

And the number of boys, who celebrate their birthdays in 4th quarter:

180 × Y/3Y= 60

The total number of boys in the college = 40 + 120 + 180 + 60 = 400

So, X= 40/400 ×100=10%

And, Y= 60/400 ×100=15%

Since, out of total students, who celebrate their birthdays in 3rd quarter, the percentage of girls = (2Y + X)% = (2 * 15 + 10)% = 40%

So, out of total students, who celebrate their birthdays in 3rd quarter, the percentage of boys = 100 – 40 = 60%

So, the total number of students, who celebrate their birthdays in 3rd quarter:

180 × 100/60=300

The total number of students, who celebrate their birthdays in 1st quarter:

300 × 32/40=240

The total number of students, who celebrate their birthdays in 2nd quarter:

300 × 18/40=135

The total number of students, who celebrate their birthdays in 4th quarter:

300 × 10/40=75

Quarter	Total no. of students, who have their birthdays in the given quarter	No. of boys, who have their birthdays in the given quarter	No. of girls, who have their birthdays in the given quarter
1st	240	40	200
2nd	135	120	15
3rd	300	180	120
4th	75	60	15

1. Answer: C

The total number of girls, who celebrate their birthdays in 1st quarter = 200

So, the number of girls, who celebrate their birthdays in Mar:

(100 – 40 – 22.5)% of 200 = 75

The total number of girls, who celebrate their birthdays in 3rd quarter = 120

So, the number of girls, who celebrate their birthdays in Sep:

(100 – 40 – 37.5)% of 120 = 27

Required average = (75+27)/2 = 51

2. Answer: A

The total number of boys, who celebrate their birthdays in 1st quarter = 40

Out of the total number of boys, who celebrate their birthdays in 1st quarter, percentage of boys, who celebrate their birthdays in Jan and Feb:

(3Y + X)% = (3 * 15 + 10)% = 55%

So, the number of boys, who celebrate their birthdays in Mar = (100 – 55)% of 40 = 18

The total number of boys, who celebrate their birthdays in 2nd quarter = 120

Out of the total number of boys, who celebrate their birthdays in 2nd quarter, percentage of boys, who celebrate their birthdays in Apr and May:

(6X + Y)% = (6 * 10 + 15)% = 75%

So, the number of boys, who celebrate their birthdays in June = (100 – 75)% of 120 = 30

Required percentage = 18/30 ×100 = 60%

From option (a):

4Y% = 4 * 15 = 60%

So, option (a) is correct.

From option (b):

5X% = 5 * 10 = 50%

So, option (b) is not correct.

From option (c):

(4Y – X)% = (4 * 15 – 10)% = 50%

So, option (c) is not correct.

Hence, only option (a) is correct.

3. Answer: D

The total number of girls in the college = 200 + 15 + 120 + 15 = 350

The total number of girls, who celebrate their birthdays in 2nd, 3rd and 4th quarters = 15 + 120 + 15 = 150

So, the required percentage = 150/350 ×100 = 42.8% = 43% (approx.)

4. Answer: B

The total number of boys, who celebrate their birthdays in 2nd and 4th quarters = 120 + 60 = 180

The total number of girls, who celebrate their birthdays in 2nd and 4th quarters = 15 + 15 = 30

Required ratio = 180: 30 = 6: 1

{5 – 9}

Solution

Let the number of passengers handled by PNBE in May be ‘x’

Therefore, number of passengers handled by NDLS in March = (x + 2000)

Number of passengers handled by PNBE in April = 1.25(x + 2000)

Number of passengers handled by DHN in March = 1.25(x + 2000) – x = (0.25x + 2500)

Number of passengers handled by DHN in May = (x – 2500)

Number of passengers handled by DHN in March and May = 0.25x + 2500 + x – 2500 = 1.25x

Therefore, number of passengers handled by NDLS in April = 1.25x

Number of passengers handled by PNBE in March = (x + 2000) – (0.25x + 2500) = (0.75x – 500)

Number of passengers handled by NDLS in May = 1.2(0.75x – 500) = (0.9x – 600)

Number of passengers handled by DHN in April = 0.75x

According to the question,

5.Solution

0.25x + 2500 + 0.75x = 42500

Or, x = 40000

Required ratio = (0.9x – 600):x = 35400:40000 = 177:200
Hence, option c.

6.Solution

0.6(x + 2000 + 1.25x + 0.9x – 600) = 46200
Or, 1.89x + 840 = 46200
Or, 1.89x = 45360
Or, x = 24000
Required difference = (x – 2500) – 0.75x = 0.25x – 2500 = 3500
Hence, option a.

7.Solution

1.38 × 1.25x = 0.75x – 500 + x
Or, 0.025 = 500
Or, x = 20000
Therefore, number of passengers handled by PNBE in May = x = 20000
Number of passengers handled by DHN in March = 0.25x + 2500 = 7500
Required percentage = {(20000 – 7500)/20000} × 100 = 62.5%
Hence, option e.

8.Solution

(x + 2000)/(0.9x – 600) = 170:141
Or, 141x + 282000 = 153x – 102000
Or, 12x = 38400
Or, x = 32000
So the number of passengers handled by PNBE in May = 32000
Hence, option e.

9.Solution

For I:
Required difference = x + 2000 – (x – 2500) = 4500
Therefore, 'I' can be determined.
For II:
Required difference = x – (x – 2500) = 2500
Therefore, 'II' can be determined.
For III:
Required ratio = 1.25x:0.75x = 5:3
Therefore, 'III' can be determined.
Hence, option b.

(10 – 14)

Product ➔	Ice Cream	Chocolates		Total
		Kit - Kat	5 Star	
A	120	140	40	300
B	100	80	50	230
C	150	91	65	306
Total	370	311	155	836

10) Ans. (A)

Total Kit - Kat Chocolates produced : Total 5 Star Chocolates produced
= 311 : 155

11) Ans. (A)

Ice Creams produced are more than Kit - Kat Chocolates produced by
= (370 – 311) × 100/311 = 18.97%

12) Ans. (B)

Average Chocolates produced in, Factory B & Factory C
= [(80 + 50) + (91 + 65)]/2 = (130 + 156)/2 = 143

13) Ans. (B)

Total product produced in Factory C = 306

14) Ans. (A)

Average Kit - Kat Chocolates produced in Factory A & C – Ice Creams produced in Factory A = 120 – (140 + 91)/2 = 120 – 115.5 = 4.5

{15 – 19}

15.

1. Principal = 2 × 22000 = Rs 44000, Interest = Rs 14564, time = 3 years
Amount = 44000 + 14564 = Rs 58564

$$A = P\left(1 + \frac{r}{100}\right)^n$$

$$58564 = 44000\left(1 + \frac{r}{100}\right)^3$$

$$\frac{58564}{44000} = \left(1 + \frac{r}{100}\right)^3$$

$$\frac{1331}{1000} = \left(1 + \frac{r}{100}\right)^3$$

$$\frac{11}{10} = 1 + \frac{r}{100}$$

$$\frac{r}{100} = \frac{1}{10}$$

$$r = 10\%$$

Hence, option B is correct.

16.

2. Principal = Rs 22500, rate = 12%, Amount = Rs 29250, S.I. = 29250 – 22500 = Rs 6750

$$S.I. = P \times r \times \frac{t}{100}$$

$$6750 = 22500 \times 12\% \times t$$

$$t = 2.5 \text{ years}$$

Hence, option C is correct..

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3. Interest rate of G : interest rate of C = 5 : 4

Interest rate of G = $\frac{20}{4} \times 5 = 25\%$

S.I. = Rs 9750, time = 2 years

S.I. = P × r% × t

9750 = P × 25% × 2

9750 ÷ 25% ÷ 2 = P

P = 19500

Principal = Rs 19500

Hence, option D is correct.

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4. Amount = Rs 30250, time = 2 years, interest rate = 10%

$A = P\left(1 + \frac{r}{100}\right)^t$

$30250 = P\left(1 + \frac{10}{100}\right)^2$

$30250 = P\left(\frac{11}{10}\right)^2$

$30250 = P \times \frac{121}{100}$

P = 25000

Difference = $P\left(\frac{r}{100}\right)^2$

Difference = $25000\left(\frac{10}{100}\right)^2$

= 250

Difference between C.I. and S.I for 2 years is Rs 250.

Hence, option B is correct.

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5. Interest of scheme A = 35200 – 22000 = Rs 13200

Interest of scheme B,

$A = P\left(1 + \frac{r}{100}\right)^t$

$30250 = P\left(1 + \frac{10}{100}\right)^2$

$30250 = P \times \frac{121}{100}$

P = 25000

Interest of scheme B = Rs 5250

Interest of scheme C = 17280 – 10000 =Rs 7280

Interest of scheme D = 29250 – 22500 = Rs 6750

Interest of scheme E,

Interest = $P\left(1 + \frac{r}{100}\right)^t - P$

$= 27500\left(1 + \frac{16}{100}\right)^2 - 27500$

$= 27500\left(\frac{29}{25}\right)^2 - 27500$

= 37004 – 27500 = 9504

Total interest = 13200 + 5250 + 7280 + 6750 + 9504 = Rs 41984

Hence, option E is correct.