

Quiz Date: 3rd June 2020

Q1. The average weight of 5 men is decreased by 3 kg when one of them weighing 150 kg is replaced by another person. The new person is again replaced by another person whose weight is 30 kg lower than the person he replaced. What is the overall change in the average due to this dual change?

- (a) 6 kg
- (b) 9 kg
- (c) 12kg
- (d) 15 kg
- (e) 20kg

Q2. Akhilesh took five papers in an examination, where maximum marks for each paper was 200. His marks in these' papers were in the proportion of 7 : 8 : 9 : 10 : 11. If his overall score in these exams was 60%, then the number of papers in which he got more than 50% marks is:

- (a) 1
- (b) 3
- (c) 4
- (d) 5
- (e) None of these

Q3. In a group of 4 friends, ratio of present age of A and D is 4:5 and that B to C is 3:4. Calculate the present average age of A, B and C, if 4 years ago, A was 20 years younger than C and at present C is twice of age of A.

- (a) 20 years
- (b) 50 years
- (c) 40 years
- (d) 25 years
- (e) 30 years

Q4. A 20 litres mixture contains milk and water in the respective ratio of 3 : 2. Then 10 litres of the mixture is removed and replaced with pure milk and the operation is repeated once more. At the end of the two removals and replacements, what is the ratio of milk and water in the resultant mixture respectively?

- (a) 17 : 3
- (b) 9 : 1
- (c) 4 : 17
- (d) 5 : 3
- (e) 3 : 14

Q5. There are two vessels A and B. Vessel A contains mixture of milk and water in the ratio of 11 : 9, while vessel B contains mixture of water and apple Juice in the ratio of 3 : 7. If 44 liter mixture from vessel A and 32 liter mixture from vessel B taken out and mixed together in vessel C, then find the quantity of water in vessel C ?

- (a) 29.4 ℓ

- (b) 2.94 ℓ
- (c) 24.9 ℓ
- (d) 26.4 ℓ
- (e) 23.4 ℓ

Q6. In a school there are 1800 students. Last day except 4% of the boys all the students were present in the school. Today except 5% of the girls all the students are present in the school, but in both the days no. of students present in the school, were same. The no. of girls in the school is:

- (a) 1200
- (b) 800
- (c) 1000
- (d) 600
- (e) can't be determined



Q7. There are some teachers in a college with average age of 45 years. Sum of maximum age and minimum age is 108 years and difference of maximum age and minimum age is 27 years. If fourteen teachers left the college with the average age of 32.5 years and six new teachers joined college. Out of six new teachers, ages of each of 4 teachers are equal to maximum age teacher and each of two teachers age equal to minimum age teacher. If new average becomes $49\frac{4}{7}$ years, then find the number of teachers initially?

- (a) 54
- (b) 60
- (c) 64
- (d) 68
- (e) 72

Q8. Two farmers A & B have mixture of urea & Potassium in the quantity of 120 kg and 80 kg respectively. The mixture of farmer A has $37\frac{1}{2}\%$ potassium and the mixture of farmer B has 40% potassium. If farmer A used 60% of his mixture & B used 50% of his mixture and both gives their remaining mixture to farmer C, who have already mixture of an equal quantity of urea & Potassium. If ratio of urea & Potassium in resulting mixture of farmer C is 7 : 5, find total initial quantity of mixture farmer C had?

- (a) 24 kg
- (b) 36 kg

- (c) 32 kg
(d) 42 kg
(e) 48 kg

Q9. Average present age of A, B, C and D is 27.5 years. Find the sum of present age of B and C together, if 5 years ago, average age of A and D was greater by 1 years than average age of B and C.

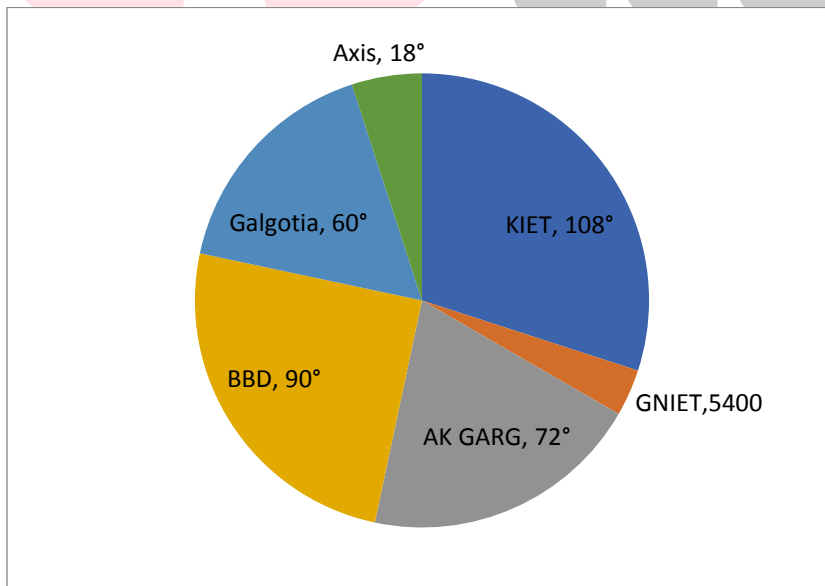
- (a) 51
(b) 44
(c) 49
(d) 54
(e) None of these

Q10. 'x' liters of a 30% alcohol solution is mixed with 40 liters of 60% alcohol solution & a resultant of 50% alcohol solution is formed. Now '3x' liters of y% alcohol solution is added to 30 liters of 50% alcohol solution which resulted in 45% alcohol solution. The ratio of y : x is

- (a) 17 : 6
(b) 16 : 15
(c) 7 : 15
(d) 14 : 5
(e) 17 : 8

Directions (11-15): The following pie-chart shows the distribution of students in six different private institutes and the table shows the ratio of boys and girls in them. Study the graphs carefully to answer the following questions.

Note: Some data are in degree and some data are in absolute value.



Institutes	Ratio of Boys and Girls
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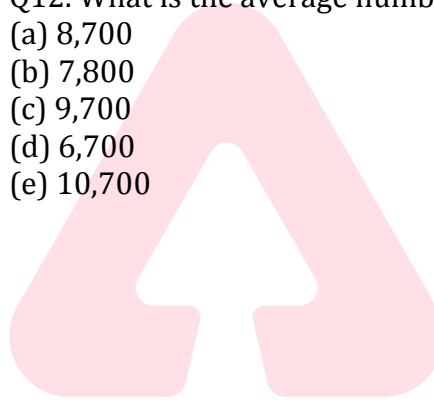
	Boys : Girls
KIET	5 : 4
GNIET	3 : 1
AK GARG	5 : 3
BBD	3 : 2
Galgotia	7 : 5
Axis	2 : 1

Q11. Total no. of boys from KIET college is what per cent more than that of boys from BBD?

- (a) $\frac{50}{3}\%$
- (b) $\frac{100}{9}\%$
- (c) $\frac{200}{9}\%$
- (d) $\frac{80}{9}\%$
- (e) None of these

Q12. What is the average number of girls from AK GARG, Galgotia and Axis institutes?

- (a) 8,700
- (b) 7,800
- (c) 9,700
- (d) 6,700
- (e) 10,700



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Q13. If $\frac{50}{3}\%$ students of AK GARG are passed their final exam and leave the college then total no. of students of AK GARG who are failed are what percent of total no. of students of GNIET?

- (a) 50%
- (b) 400%
- (c) 500%
- (d) 450%
- (e) 250%

Q14. What is the difference between total no. of boys of GNIET and BBD together and total no. of girls of KIET and Axis colleges together?

- (a) 5,400

- (b) 4,005
 (c) 4,050
 (d) 3,050
 (e) 3,090

Q15. Find the total no. of boys of colleges KIET, AK GARG and Galgotia together.

- (a) 61,000
 (b) 63,000
 (c) 53,000
 (d) 73,000
 (e) 63,500

Solutions

S1. Ans.(b)

Sol.

Let weight of first new person be x

$$x = 150 - 15 = 135$$

Weight of second new person = $135 - 30 = 105$ kg

Net drop is 45 kg for 5 people
 so 9 kg drop for each person

S2. Ans.(c)

Sol.

50% of an exam means that he obtained 100 marks.

$$7x + 8x + 9x + 10x + 11x = \frac{60}{100}(200 \times 5)$$

$$= 45x = 600$$

$$\Rightarrow x = \frac{600}{45} = \frac{40}{3}, \quad 7x = \frac{280}{3} < 100 \quad \& \quad 8x = \frac{320}{3} > 100.$$

Marks obtained in 4 papers are more than 50%

S3. Ans.(e)

Sol.

Let the present age of B is 3K and that of C is 4K.

Also assume present age of A is 4m and D is 5m.

Note that age difference between A and C will always be 20 years.

$$4K - 4m = 20$$

$$K - m = 5 \dots(i)$$

$$\text{Also } \frac{4K}{4m} = 2$$

$$K = 2m \dots(ii)$$

$$m = 5 \text{ years}$$

$$K = 10 \text{ years}$$

$$\therefore \text{Average of A, B and C} = \frac{20+30+40}{3} = 30 \text{ years}$$

S4. Ans.(b)

Sol.

$$\text{Original quantity of milk} = 20 \times \frac{3}{5} = 12 \ell$$

$$\text{and that of water} = 20 - 12 = 8 \ell$$

Milk	Water
------	-------

After 1st changing	(12 - 6) + 10	8 - 4
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= 16 ℓ	= 4 ℓ
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New ratio of milk and water after 1st changing = 16 : 4 = 4 : 1

Milk	Water
------	-------

After 2nd changing	(16 - 8) + 10	4 - 2
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= 18 ℓ	= 2 ℓ
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So, finally new ratio of milk and water = 9:1



S5. Ans.(a)

Sol.

Quantity of water in mixture taken out

$$\text{from vessel A} = \frac{9}{20} \times 44 = 19.8 \ell$$

Quantity of water in mixture taken out

$$\text{from vessel B} = \frac{3}{10} \times 32 = 9.6 \ell$$

\therefore Total quantity of water in vessel C

$$= 19.8 + 9.6 = 29.4 \ell$$

S6. Ans.(b)

Sol.

Let total no. of boys in school = x

\therefore total no. of girls in school = (1800 - x)

$$\frac{96x}{100} + (1800 - x) = x + \frac{95}{100}(1800 - x)$$

$$\Rightarrow 96x + 180000 - 100x = 100x + 171000 - 95x$$

$$\Rightarrow 9x = 9000$$

$$\Rightarrow x = 1000$$

\therefore No. of girls = $1800 - 1000 = 800$

S7. Ans(c)

Sol.

Let total teachers in a college initially = N

Let maximum age = a year

Minimum age = b years

ATQ -

$$a + b = 108 \text{ ----- (i)}$$

$$a - b = 27 \text{ -----(ii)}$$

From (i) & (ii)

$$2a = 135 \text{ year}$$

$$a = 67.5 \text{ years}$$

$$\text{And, } b = 40.5 \text{ years}$$

$$N \times 45 - 14 \times 32.5 + 4 \times 67.5 + 2 \times 40.5 = (N - 14 + 6) \frac{347}{7}$$

$$7(45N - 455 + 270 + 81) = 347N - 2776$$

$$315N - 728 = 347N - 2776$$

$$32N = 2048$$

$$N = \frac{2048}{32}$$

$$N = 64$$

S8. Ans (c)

Sol.

Farmer A has ratio of urea & Potassium in mixture = 5 : 3

Farmer B has ratio of urea & Potassium in mixture = 3 : 2

Let farmer C have x kg of urea & x kg of potassium

$$\begin{aligned} \text{Farmer C has Urea in resulting mixture} &= 120 \times \frac{40}{100} \times \frac{5}{8} + 80 \times \frac{50}{100} \times \frac{3}{5} + x \\ &= (54 + x) \text{ kg} \end{aligned}$$

$$\begin{aligned} \text{Farmer C has Potassium in resulting mixture} &= 120 \times \frac{40}{100} \times \frac{3}{8} + 80 \times \frac{50}{100} \times \frac{2}{5} + x \\ &= (34 + x) \text{ kg} \end{aligned}$$

ATQ -

$$\frac{(54 + x)}{(34 + x)} = \frac{7}{5}$$

$$270 + 5x = 238 + 7x$$

$$2x = 32$$

$$x = 16 \text{ kg}$$

$$\text{initial quantity of mixture farmer C had} = 16 \times 2 = 32 \text{ kg}$$

S9. Ans.(d)

Sol.

Let the present age of A, B, C and D is A, B, C and D respectively.

$$\therefore A + B + C + D = 27.5 \times 4$$

$$(A + D) + (B + C) = 110 \text{ years ... (i)}$$

Also, from the condition, 5 year ago, average age of A and D is greater by 1 than B & C.

We can say that

$$\frac{A+D}{2} - \frac{(B+C)}{2} = 1$$

$$\Rightarrow (A + D) - (B + C) = 2 \text{ ... (ii)}$$

Solving (i) & (ii) we get $B + C = 54$ years.

S10. Ans.(e)

Sol.

From statement I

$$x \times \frac{30}{100} + 40 \times \frac{60}{100} = \frac{1}{2}$$

$$\Rightarrow \frac{(2400 + 30x)}{100(x+40)} = \frac{1}{2}$$

$$\Rightarrow x = 20$$

Now from statement II

$$\frac{(3x \times \frac{y}{100} + 30 \times \frac{50}{100})}{3x+30} = \frac{45}{100}$$

Here $3X = 3 \times 20 = 60$ litres

$$\Rightarrow \frac{\left(\frac{60y}{100}\right) + 15}{90} = \frac{45}{100}$$

$$\Rightarrow \frac{60y}{100} = \frac{81}{2} - 15$$

$$\Rightarrow y = 42.5$$

$$\therefore y : x = 42.5 : 20$$

$$= 17 : 8$$

S11. Ans.(b)

$$\text{Sol. Required percentage} = \frac{\frac{5}{9} \times 108 - \frac{3}{5} \times 90}{\frac{3}{5} \times 90} \times 100$$

$$= \frac{100}{9} \%$$

S12. Ans.(a)

$$\text{Sol. Required average} = \frac{1}{3} \times \left(\frac{3}{8} \times \frac{72}{12} + \frac{5}{12} \times \frac{60}{12} + \frac{1}{3} \times \frac{18}{12} \right) \times 5400$$

$$(\because \text{GNIET} = 360 - 348 = 12^\circ)$$

$$= \frac{1}{3} \times (26,100)$$

$$= 8,700$$

S13. Ans.(c)

$$\text{Sol. } \frac{50}{3} \% = \frac{1}{6}$$

$$\therefore \text{Required percentage} = \frac{\frac{5}{6} \times 72}{12} \times 100$$

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= 500%

S14. Ans.(c)

Sol. Total no. of boys of GNIET and BBD together = $\frac{3}{4} \times 5400 + \frac{3}{5} \times \frac{90}{12} \times 5400$

= 28,350

Total no. of girls of KIET and Axis colleges together

= $\frac{4}{9} \times \frac{108}{12} \times 5400 + \frac{1}{3} \times \frac{18}{12} \times 5400$

= 21,600 + 2,700

= 24,300

∴ Required difference = 28,350 - 24,300

= 4,050

S15. Ans.(b)

Sol. Required no. of boys

= $\left(\frac{5}{9} \times \frac{108}{12} + \frac{5}{8} \times \frac{72}{12} + \frac{7}{12} \times \frac{60}{12}\right) \times 5400$

= 63,000



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