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Average Quiz 4

Directions: Kindly study the following Questions carefully and choose the right answer:

1. There are 7 friends. If salaries of these friends are in order-

$$10K = S1 \geq S2 \geq S3 \geq S4 \geq \dots \geq S7 = 5K$$

Which of the following can't be the average of these 7 friends.

- A. 5 B. 6.71 C. 9.42 D. 6 E. None of these

2. The average age of A and B is 20 years. If A is to be replaced by C, the average would be 19 years. The average age of C and A is 21 years. The ages of A, B and C in order (in years) are

- A. 18, 22, 20 B. 18, 20, 22 C. 22, 18, 20 D. 22, 20, 18 E. None of these

3. The average monthly income of a family of four earning members was Rs. 15130. One of the daughters in the family got married and left home, so the average monthly income of the family came down to Rs. 14660. What is the monthly income of the married daughter?

- A. Rs. 15350 B. Rs. 12000 C. Rs. 16540
D. Can't be determined E. None of these

4. A man purchases milk for three consecutive years. In the first year, he purchases milk at the rate of Rs. 7.50 per litre, in the second year, at the rate of Rs. 8.00 per litre and in the third year, at Rs. 8.50 per litre. If he purchases milk worth Rs. 4,080 each year, the average price of milk per litre for the three years is

- A. Rs. 7.68 B. Rs. 7.98 C. Rs. 7.54 D. Rs. 7.83 E. None of these

5. The average weight of 21 boys was recorded as 64 kg. If the weight of the teacher was added, the average increased by one kg. What was the teacher's weight ?

- A. 86 Kg B. 64 Kg C. 72 Kg D. 98 Kg E. None of these

6. The average age of 13 persons is 36 years. If the age of one more person is added the average decreases by half a year. What is the age of the new person ?

- A. 29 years B. 23 years C. 42.5 years D. 27 years E. None of these

7. The average age of nurses in a nursing home in 1982 was 50 years. In 1984, 20 nurses retired from their job, whose average age was 60 years. After a huge gap in 1987, 40 nurses were employed whose average age was 38 years. The average age of all the nurses in 1990 was:

- A. 53 years B. 51 years C. 48.5 years D. Data insufficient E. None of these

8. The average marks of Sameer decreased by 1, when he replaced the subject in which he has scored 40 marks by the other two subjects in which he has just scored 23 and 25 marks respectively. Later he has also included 57 marks of Computer Science, then the average marks increased by 2. how many subjects were there initially?

- A. 6 B. 12 C. 15
D. Can't be determined E. None of these

9. The Total age of all the guests in the party was 540 years, if a South Indian couple (guests) left the party, then the average of the remaining guests still remained unchanged, where the age of both the husband and wife (the south Indian couple) was same, then the average age of this couple and the total number of guests in the party, respectively, can be:

- A. 18, 27 B. 20, 27 C. 15, 38
D. Can't be determined E. None of these

10. Mr. Tyagi walked 6 km to reach the station from his house, then he boarded a train whose average speed was 60km/hr and thus he reached his destination. In this way he took total of 3 hours. If the average speed of the entire journey was 32 km/hr then the average speed of walking is:

- A. 3 km/hr B. 4.5 km/hr C. 4 km/hr
D. Can't be determined E. None of these

Correct Answers:

1	2	3	4	5	6	7	8	9	10
C	C	C	B	A	A	B	C	B	C

Explanations:

1. Maximum average could be

$$= \frac{(10 + 10 + 10 + 10 + 10 + 10 + 5)}{7} = 9.28$$

Which is being satisfied by option C i.e. 9.42.

Hence, option (C) is correct

2. $A + B = 2 \times 20 = 40$ yr

$B + C = 2 \times 19 = 38$ yr

$C + A = 2 \times 21 = 42$ yr

On adding all three,

$$2(A + B + C) = 40 + 38 + 42 = 120$$

$$\Rightarrow A + B + C = 60$$

$$\therefore A = (A + B + C) - (B + C) = 60 - 38 = 22$$
 yr

Similarly,

$$B = (A + B) - A = 40 - 22 = 18$$
 yr

$$C = (C + A) - A = 42 - 22 = 20$$
 yr

Note: In this question we can save 4-5 seconds by not calculating the age of the third person as with only the respective ages of A and B we can confirm the correct answer out of the given options.

Hence, option (C) is correct.

3. Since the month begins with a Saturday, So there will be five Sundays in the month,

$$\text{Req. Avg.} = \frac{430 \times 5 + 270 \times 26}{31} \Rightarrow \frac{2150 + 7020}{31}$$

$$\Rightarrow \frac{9170}{31} = 295.80 \approx 296.$$

So, the around value of visitors per day is 296.

Hence, option D is correct.

4. Price of milk in first year = Rs. 7.50 per litre.

$$\therefore \text{Quantity of milk in first year} = \frac{4080}{7.50} = 544 \text{ litres}$$

Price of milk in second year = Rs. 8.00 per litre.

$$\therefore \text{Quantity of milk in second year} = \frac{4080}{8.00} = 510 \text{ litres}$$

Price of milk in third year = Rs. 8.50 per litre.

$$\therefore \text{Quantity of milk in third year} = \frac{4080}{8.50} = 480 \text{ litres}$$

$$\therefore \text{Required average} = \frac{3 \times 4080}{544 + 510 + 480}$$

$$= \frac{12240}{1534} = \text{Rs. } 7.98$$

Hence, option (B) is correct.

5. Total weight of 21 boys = $64 \times 21 = 1344$ kg

Given that if the weight of the teacher was added, the average increased by one kg

$$\therefore \text{Total weight along with the teacher} = 65 \times 22 = 1430 \text{ kg}$$

$$\text{Now, teacher's weight} = 1430 - 1344 = 86$$

Hence, option (A) is correct.

6. Total age of 13 persons = $36 \times 13 = 468$

Given that if the age of one more person is added the average decreases by half a year

$$\therefore \text{Total age of 14 persons} = 35.5 \times 14 = 497$$

$$\text{Now, Age of the new person} = 497 - 468 = 29 \text{ years}$$

Hence, option (A) is correct.

7.

	Year/Time	No. of Nurses	Average Age	Total Age
	1982	100	50	5000
Just before retirement	1984	100	52	5200
Just after retirement	1984	$(100 - 20) = 80$	50	$(5200 - 20 \times 60) = 4000$
Just before retirement	1987	80	53	4240
Just after retirement	1987	$(80 + 40) = 120$	48	$(4240 + 38 \times 40) = 5760$
	1990	120	51	6120

Hence, option (B) is correct.

8. Let the number of subjects be 'n' and average marks be 'x'.

Then, total marks = nx

$$\text{Again } (n + 1)(x - 1) = (nx - 40) + (23 + 25)$$

$$\Rightarrow x - n = 9 \quad \dots (1)$$

$$\text{Further } (n + 2)(x + 1) = (nx - 40) + (23 + 25) + 57$$

$$\Rightarrow nx + 2x + n + 2 = nx + 65$$

$$\Rightarrow 2x + n = 63 \quad \dots (2)$$

Solving equations (1) and (2), we get

$$n = 15 \text{ and } x = 24.$$

Hence, option (C) is correct.

9. With the given information it is evident that the average age of the south Indian couple & that of the other member is equal, because the inclusion or subtraction of their age is not affecting the average of the group.

We can find the average age of the couple and number of persons by applying hit & trial method.

Let's take the option B which is 20, 27

$$\therefore \text{Average age of the party members} = \frac{540}{27} = 20$$

We can confirm it further by putting it in the eq. as follows,

$$\frac{\text{Total age} - (\text{Total age of couple})}{\text{Remaining no. of guests}} = \text{Old age (It remains unchanged)}$$

$$\Rightarrow \frac{540 - (20 \times 2)}{27 - 2} = 20$$

$$\text{L.H.S} = \text{R.H.S}$$

Hence proved.

Hence, option (B) is correct.

10. Total distance = $32 \times 3 = 6 + 60 \times x$

$$\Rightarrow x = 1.5 \text{ hours}$$

$$\text{Thus, the speed of walking} = \frac{6}{1.5} = 4 \text{ km/hr.}$$

Hence, option (C) is correct.



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