

**Quiz Date: 6<sup>th</sup> June 2020**

Q1. Present average age of A, B, C and D is 25 years. Sum of age of A and B is 150% of sum of age of C and D. Ratio of age of B to age of C is 3 : 5. Calculate 10 years later age of A, if B and D are of same age.

- (a) 45 years
- (b) 40 years
- (c) 35 years
- (d) 55 years
- (e) 50 years

Q2. Average of any 200 consecutive natural numbers is 499.5. If next 1000 numbers more are added in it then find the new average.

- (a) 1035.5
- (b) 1299.5
- (c) 1199.5
- (d) 1099.5
- (e) 999.5

Q3. There are three positive numbers,  $\frac{1}{3}$ rd of average of all the three numbers is 8 less than the value of the highest number. Average of lowest and the second lowest number is 8. Which is the highest number ?

- (a) 11
- (b) 14
- (c) 10
- (d) 9
- (e) 13

Directions (4-5): Answer these questions based on the information given below.

There are five members A, B, C, D and E in a family. Ratio of ages of A and B five years ago was 3 : 4. Sum of ages of D and E five years hence will be 90. If C were born four years later than his actual date of birth, Age of C would be half to that of E.

Q4. What is the age of D four years ago, if the current age of C is 27 years?

- (a) 36 years
- (b) 34 years
- (c) 38 years
- (d) 30 years
- (e) Cannot be determined

Q5. After 3 years, A will be 20 years old. What is the average of current ages of A, B, D and E together?

- (a) 29 years
- (b) 29.5 years
- (c) 30 years
- (d) 30.5 years

(e) Cannot be determined

Q6. A shopkeeper have 3 juice machines, 1st for fresh oranges, then the remaining pulp(waste other than juice) of 1st machine is used in second and similarly remaining of 2<sup>nd</sup> machine is used for 3<sup>rd</sup>. If first machine, squeeze 90% by weight juice, second give 40% by weight and last give 16  $\frac{2}{3}$ % by weight juice. Find the amount of juice (in ml) obtained by shopkeeper in 1 kg of orange. [Assume 1 gm is equal to 1.05 ml]

- (a) 950.5 ml
- (b) 900 ml
- (c) 1000 ml
- (d) 950 m l
- (e) 997.5 ml



Q7. A container contained 80 kg of milk. From this container, 8 kg of mixture was taken out and replaced by water. This process was further repeated two times. How much milk is now contained by the container?

- (a) 48 kg
- (b) 56 kg
- (c) 58.32 kg
- (d) 59.46 kg
- (e) None of these

Q8. A's income is 25% more than B's income, B's income 10% less than C's income and C's income is 30% less than D's income. If average income of all four is 15587.5 Rs. then find the income B.(in Rs)

- (a) 12600
- (b) 2000
- (c) 14000
- (d) 15250
- (e) 18000

Q9. In an alloy, zinc and copper are in the ratio 1 : 2. In the second alloy the same elements are in the ratio 2 : 3. In what ratio should these two alloys be mixed to form a new alloy in which the two elements are in ratio 5 : 8?

- (a) 7 : 11
- (b) 3:10

- (c) 5 : 11
- (d) 9:11
- (e) None of these

Q10. Two vessels contain a mixture of Spirit and water in the first vessel the ratio of Spirit to water is 8 : 3 and in the second vessel the ratio is 5 : 1. A 35 litre cask is filled from these vessels so as to contain a mixture of Spirit and water in the ratio of 4 : 1. How many litres are taken from the first vessels ?

- (a) 11 litres
- (b) 22 litres
- (c) 16.5 litres
- (d) 27.5 litres
- (e) none of these

Q11. There are two vessels – A & B. Vessel – A contains 80l mixture of petrol and kerosene oil in the ratio of 7 : 3 and Vessel – B contains petrol and kerosene oil in the ratio 5 : 9. 20l mixture of vessel – A is poured into Vessel-B, due to which ratio of petrol and kerosene oil in vessel – B becomes 11 : 15. Then, find the initial quantity of mixture in vessel – B.

- (a) 72 liters
- (b) 90 liters
- (c) 78 liters
- (d) 84 liters
- (e) 96 liters

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Q12. Average marks of Sandeep are decreased by 2 when he exclude 40 marks of social science and include 28 and 30 marks of physics and chemistry respectively. If he again add 54 marks of computer science the average becomes equal to original average. Find the number of subjects originally.

- (a) 8
- (b) 9
- (c) 10
- (d) 12
- (e) 15

Q13. A and B are two alloys which were made by mixing iron and copper in the ratio of 3 : 5 and 5 : 9 respectively. If 60 grams of alloy A and X grams of alloy B are melted and mixed to form another alloy C, what is the value of X if the ratio of iron and copper in the new alloy is 35 : 61 ?

- (a) 70 gms
- (b) 56 gms
- (c) 98 gms
- (d) 84 gms
- (e) 112 gms

Q14. Ravi and Sneha got married 10 years ago and at that time ratio of their ages was 5:4. Ratio of present age of Ravi and Sneha is 7:6. After marriage they had seven children

including a triplet and a twin. The ratio of present age of triplet, twin, sixth and the seventh child is 4:3:2:1. Find the largest possible value of the present total age of the family.

- (a) 121  
 (b) 107  
 (c) 101  
 (d) 93  
 (e) None of the above

Q15. A, B and C are partners. A receives  $\frac{10}{13}$  of the profit and B and C share the remaining profit equally. A's income is increased by Rs. 550 when the profit rises from 11% to 13%. Find the capitals invested by B and C.

- (a) Rs. 4125  
 (b) Rs. 4215  
 (c) Rs. 4251  
 (d) Rs. 4512  
 (e) None of these

### Solutions

S1. Ans.(d)

Sol.

If average age of A, B, C and D is 25 years, then total age of A, B, C and D is 100 years.

Also, if  $C + D = 2x$

Then  $A + B = 3x$  [A + B is 150% of C + D]

$$5x = 100$$

$$x = 20$$

$$A + B = 60 \dots (i)$$

$$C + D = 40 \dots (ii)$$

Now, in question ratio of B : C is given as 3 : 5.

This is also ratio of D : C, as B and D are of same age. From (ii)

We can calculate

$$C = 25 \text{ years}$$

$$D = 15 \text{ years}$$

& Hence B = 15 years

$$\therefore A = 45 \text{ years}$$

10 years later age of A is  $45 + 10 = 55$  years.

S2. Ans.(e)

Sol.

Let 200 numbers are  $\rightarrow a_1, a_2, a_3, \dots, a_{200}$

ATQ,

$$499.5 = \frac{a_1 + a_2 + a_3 + \dots + a_{200}}{200}$$

$$\Rightarrow 99900 = a_1 + a_2 + a_3 + \dots + a_{200}$$

Now,

This form an A.P.

$$a = a_1$$

$$d = 1$$

$$n = 200$$

$$\Rightarrow 99900 = \frac{200}{2} [2a_1 + (200-1)1]$$

$$a_1 = 400$$

Required sum for 1200 terms whose  $a_1 = 400$

$$= \frac{1200}{2} [2 \times 400 + (1200-1)1]$$

$$\Rightarrow 1199400$$

$$\text{Required Average} = \frac{1199400}{1200} = 999.5$$

S3. Ans.(a)

Sol.

Let the no. be  $a, b$  &  $c$ , where  $c$  is the highest

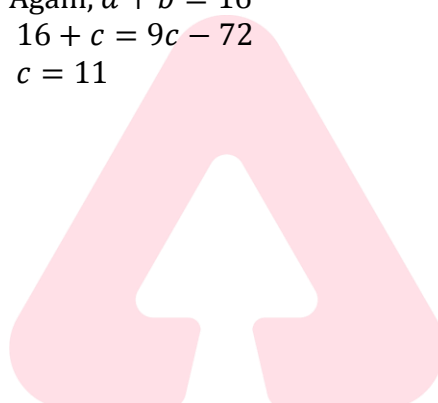
$$\frac{a+b+c}{3 \times 3} = c - 8$$

$$a + b + c = 9c - 72 \dots\dots\dots(i)$$

Again,  $a + b = 16$

$$16 + c = 9c - 72$$

$$c = 11$$



S (4-5):-

S4. Ans.(d)

Sol.

Current age of C = 27 years

According to equation (iii),

$$27 - 4 = \frac{1}{2}E$$

$$E = 46 \text{ years}$$

According to equation (iii),

$$D + 46 + 10 = 90$$

$$D = 34 \text{ years}$$

$\therefore$  Age of D four years ago was 30 years

Let age of A, B, C, D & E be A, B, C, D & E years respectively

$$(A - 5) : (B - 5) = 3 : 4 \dots\dots\dots(i)$$

$$D + E + 10 = 90 \dots\dots\dots(ii)$$

$$C - 4 = \frac{1}{2}E \dots\dots\dots(iii)$$

S5. Ans.(b)

Sol.

Current age of A = 17 years

According to equation (i),

$$\frac{17-5}{B-5} = \frac{3}{4}$$

B = 21 years

According to equation (ii),

D + E = 80 years

$$\therefore \text{Required Average} = \frac{A+B+D+E}{4} = \frac{118}{4} = 29.5 \text{ years}$$

S6. Ans.(e)

Sol.

Juice obtained from first machine is  $\frac{90}{100} \times 1000 \text{ gm} = 900 \text{ gm}$

$900 \times 1.05 \text{ ml} = 945 \text{ ml}$

Pulp remain from Ist machine =  $1000 - 900 = 100 \text{ gm}$

Amount of juice obtained from second machine =  $\frac{40}{100} \times 100 = 40 \text{ gm} = 40 \times 1.05 \text{ ml} = 42 \text{ ml}$

Pulp remained from IInd machine =  $100 - 40 = 60 \text{ gm}$

Juice obtained by shopkeeper from IIIrd machine

$$= \frac{16\frac{2}{3}}{100} \times 60$$

$$= \frac{50}{300} \times 60 = 10 \text{ gm}$$

Juice obtained =  $10 \times 1.05 = 10.5 \text{ ml}$

Total juice obtained from 1kg of orange is

=  $945 + 42 \text{ ml} + 10.5 \text{ ml}$

=  $997.5 \text{ ml}$

S7. Ans.(c)

Sol.

Out of 80 kg of milk, 8 kg of milk was taken out, means 10% of the mixture taken out

Milk after three replacement

$$= 80 \times \frac{9}{10} \times \frac{9}{10} \times \frac{9}{10}$$

$$= 58.32 \text{ kg}$$

Or

Amount of liquid after 'n' operations, when the container originally contains 'x' unit of liquid from which 'y' unit is taken out each time

$$= x \left[ \frac{x-y}{x} \right]^n \text{ unit}$$

$$\Rightarrow \text{Amount of milk left} = 80 \left[ \frac{80-8}{80} \right]^3 \text{ kg} = 80 \left[ \frac{72}{80} \right]^3 = 80 \left[ \frac{9}{10} \right]^3 = 58.32 \text{ kg}$$

S8. Ans.(a)

Sol.

Let income of D = 1000

$$\text{Income of C} = \frac{1000 \times 70}{100} = 700$$

$$\text{Income of B} = \frac{700 \times 90}{100} = 630$$

Income of A = 787.5

ATQ,

$$\frac{787.5 + 630 + 700 + 1000}{4} = 15587.5$$

1 unit  $\Rightarrow$  20

Income of B  $\rightarrow 630 \times 20 = 12600$  Rs.

S9. Ans.(b)

Sol.

$$\begin{array}{ccc} \text{Zinc} & & \text{Zinc} \\ \frac{1}{3} & \searrow \frac{5}{13} \swarrow & \frac{2}{5} \\ \frac{2}{5} - \frac{5}{13} & & \frac{5}{13} - \frac{1}{3} \\ = \frac{1}{65} & & = \frac{2}{39} \\ \text{Required ratio} = \frac{\frac{1}{65}}{\frac{2}{39}} = \frac{3}{10} \end{array}$$

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S10. Ans.(a)

Sol.

$$\text{Spirit in Later mixer} = 35 \times \frac{4}{5} = 28$$

$$\text{Water in Later mixer} = 35 \times \frac{1}{5} = 7$$

ATQ,

$$8x + 5y = 28 \quad \dots\dots\dots(i)$$

$$3x + y = 7 \quad \dots\dots\dots(ii)$$

Now Equation (ii)  $\times$  5 - (i)

$$\Rightarrow 5(3x + y = 7)$$

$$\Rightarrow 15x + 5y = 35$$

$$(ii) - (i)$$

$$\begin{array}{r}
 15x + 5y = 35 \\
 8x + 5y = 28 \\
 \hline
 7x = 7 \\
 x = 1
 \end{array}$$

Required answer,

$$\begin{aligned}
 &8x + 3x \\
 &= 11x \\
 &= 11 \times 1 \\
 &= 11 \text{ Ltr}
 \end{aligned}$$

S11. Ans.(d)

Sol. Let initial quantity of petrol and kerosene oil in vessel – B be '5x' lit & '9x'lit respectively.

ATQ,

$$\frac{5x + 20 \times \frac{7}{10}}{9x + 20 \times \frac{3}{10}} = \frac{11}{15}$$

$$\frac{5x + 14}{9x + 6} = \frac{11}{15}$$

$$75x + 210 = 99x + 66$$

$$\Rightarrow x = 6$$

So, required quantity = (5x+9x) lit

$$= 14x$$

$$= 84 \text{ liters.}$$

S12. Ans.(a)

Sol.

Let, number of subjects be x and average marks y

∴ Total marks = xy

Atq,

$$xy - 40 + (28 + 30) = (x + 1)(y - 2)$$

$$\Rightarrow 20 = y - 2x \quad \dots(i)$$

And,

$$Xy + 18 + 54 = (x + 2) \times y \Rightarrow y = 36 \quad \dots(ii)$$

From (i) and (ii)

$$x = 8$$

S13. Ans.(d)

Sol. In X gram of alloy B

$$\text{Iron} = 5 \times \frac{X}{14}$$

$$\text{Copper} = 9 \times \frac{X}{14}$$

In 60 gram of alloy A

$$\text{Iron} = 60 \times \frac{3}{8} = \frac{45}{2} \text{ gm}$$

$$\text{Copper} = 60 \times \frac{5}{8} = \frac{75}{2} \text{ gm}$$



Atq,

$$\frac{\frac{45 + \frac{x \times 5}{2} + \frac{14}{75} + \frac{9x}{2 + 14}}{2 + 14}}{61} = \frac{35}{61} \Rightarrow x = 84 \text{ gm}$$

S14. Ans(b)

Sol:

Let present age Ravi and Sneha be  $7x$  and  $6x$  years respectively

ATQ

$$\frac{7x-10}{6x-10} = \frac{5}{4}$$

$$x = 5$$

Present age of Ravi=35 yr

And present age of Sneha=30yr

For maximum value of present total age of the family

Present age of triplet=8 yr

Present age of twins=6 yr

Present age of sixth child=4 yr

And present age of seventh child= 2yr

Maximum present age of that family= $35 + 30 + 8 \times 3 + 6 \times 2 + 4 + 2 = 107 \text{ yr}$

S15. Ans (a)

Sol. ratio of their investment =  $\frac{10}{13} : \frac{3}{26} : \frac{3}{26}$

$$= 20:3:3$$

$(13-11)\%$  of A's profit = 550

A's profit =  $550 \times \frac{100}{2} = 27500 \text{ Rs}$

Capital invested by B =  $\frac{3}{20} \times 27500 = \text{Rs. } 4125$

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