

Quiz Date: 14<sup>th</sup> March 2020

Q1. 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

Q2. In a class there are two sections i.e. A and B. 25% of the students in section A and  $44\frac{4}{9}\%$  of the students in section B are girls. If two students are chosen at random one each from section A and section B as class representative then find the probability that there will be exactly one boy out of chosen two students?

- (a)  $\frac{17}{36}$
- (b)  $\frac{13}{36}$
- (c)  $\frac{1}{2}$
- (d)  $\frac{7}{18}$
- (e)  $\frac{4}{9}$

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Q3. 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

Q4. Shivam invested Rs 3 lac in a scheme which is providing interest rate of 'r'% per annum at CI and this scheme doubles the sum invested in  $\frac{72}{r}$  years which is two times of rate of interest provided by the scheme. Find the total amount received by Shivam at the end of 48 years (in lac)?

- (a) 45
- (b) 50
- (c) 64
- (d) 32
- (e) 48

Q5. Marked price of two articles A and B is in the ratio of 3:4. Shopkeeper sold article A and article B at the discount of  $x\%$  and  $(x+8)\%$  respectively. Shopkeeper made a profit of 20% on selling article B and found that its cost price is equal to selling price of article A. Find the marked price of article B when article A is sold for Rs 972 at two successive discounts of  $\frac{x}{2}\%$  and  $2x\%$ ?

- (a) Rs 1800
- (b) Rs 2000
- (c) None of the above
- (d) Rs 1600
- (e) Rs 2800

Q6. A solid sphere is melted to form a toy with cylindrical base and conical top. Radius of sphere is 21cm and radius of toy is  $33\frac{1}{3}\%$  less than that of the sphere. Height of conical top of the toy is three times of the height of cylindrical base of the toy. Find height of the toy (in cm).

- (a) 126
- (b) 133
- (c) 112
- (d) 168
- (e) 105

Q7. Veer keeps aside 10% of his monthly salary for saving and he spends his remaining salary on expenditure and investment (house rent, travel, clothes, etc.) and respective ratio of expenditure to investment is 5 : 3. If the amount spent on saving is Rs.7600 less than the amount spent by him on investments, then find Veer's monthly salary?

- (a) Rs.28000
- (b) Rs.32000
- (c) Rs.30000
- (d) Rs.35000
- (e) Rs.40000

Q8. Ayush spent 44% of his monthly salary on accommodation and  $\frac{1}{8}th$  of the remaining salary on study material. He also spent  $71\frac{3}{7}\%$  of the remaining salary on buying some clothes and remaining amount he saves. If saving of Ayush is  $16\frac{2}{3}\%$  of Abhi's monthly salary then find Ayush's expense on study material if Abhi's annual salary is 2.52 lakh.

- (a) Rs. 1500
- (b) Rs. 1850
- (c) Rs. 1750
- (d) Rs. 1900
- (e) Rs. 1600

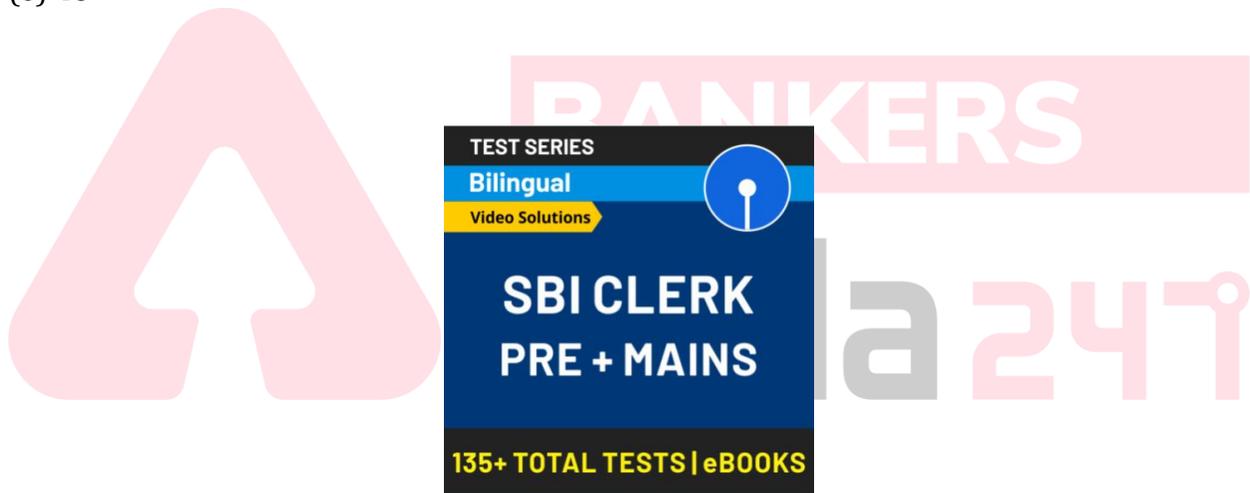
Q9. A shopkeeper marked his article  $\frac{8}{5}$  times of the cost price and allow three successive discounts of  $12\frac{1}{2}\%$ , 10% and 20% on marked price. If shopkeeper had given only two

discounts of  $12\frac{1}{2}\%$  and 20% on marked price then he would have a profit of Rs 224 more. Find the cost price of that article?

- (a) Rs 2200
- (b) Rs 2400
- (c) Rs 1800
- (d) Rs 2000
- (e) Rs 3000

Q10. A natural number when increased by  $16\frac{2}{3}\%$  it gives a natural number. However, when the value of the number is increased by  $12\frac{1}{2}\%$  the number is still natural and on reducing the number by  $66\frac{2}{3}\%$ , number is still natural than least number that could be –

- (a) 16
- (b) 24
- (c) 12
- (d) 18
- (e) 48



Q11. B is twice efficient as A and A can do a piece of work in 15 days. A started the work and after a few days B joined him. They completed the work in 11 days, from the starting. For how many days did they work together?

- (a) 1 day
- (b) 2 day
- (c) 6 days
- (d) 5 days
- (e) None of these

Q12. A, B, C and D purchased a restaurant for Rs. 56 lakhs. The contribution of B, C and D together is 460% of A alone, the contribution of A, C and D together is 366.66% that of B's contribution and the contribution of C is 40% that of A, B and D together. The amount contributed by D is

- (a) 10 lakhs

- (b) 12 lakhs
- (c) 16 lakhs
- (d) 18 lakhs
- (e) None of these

Q13. If the selling price of a mat is five times the discount offered and if the percentage of discount is equal to the percentage profit, find the ratio of the discount offered to the cost price.

- (a) 11 : 30
- (b) 1 : 5
- (c) 1 : 6
- (d) 7 : 30
- (e) None of these

Q14. Two equal sums were lent, one at the rate of 11% p.a. for five years and the other at the rate of 8% p.a. for six years, both under simple interest. If the difference in interest accrued in the two cases is Rs 1008. Find the sum.

- (a) Rs 11,200
- (b) Rs 5,600
- (c) Rs 12,600
- (d) Rs 14,400
- (e) None of these

Q15. A can do some work in 24 days, B can do it in 32 days and C can do it in 60 days. They start working together. A left after 6 days and B left after working for 8 days. How many more days are required to complete the whole work?

- (a) 30
- (b) 25
- (c) 22
- (d) 20
- (e) None of these

### Solutions

S1. 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,

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

S2. Ans(a)

Sol: let in section= A and B  
 Total no of students = 4x and 9y  
 No of boys = 3x and 5y  
 No of girls = x and 4y

Here we have two cases

Case 1: when boy is chosen from section A and girl is from section B

$$\text{Probability} = \frac{3}{4} \times \frac{4}{9} = \frac{1}{3}$$

Case 2: when boy is chosen from section B and girl is chosen from section A

$$\text{Probability} = \frac{5}{9} \times \frac{1}{4} = \frac{5}{36}$$

$$\text{Required probability} = \frac{1}{3} + \frac{5}{36} = \frac{17}{36}$$

S3. 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 × 3 + 6 × 2 + 4 + 2 = 107 yr

S4. Ans(e)

Sol:

Here,

$$\frac{72}{r} = 2r$$

$$r = 6\% p. a.$$

Time in which invested sum becomes double of itself= 12 years

ATQ

$$6,00,000 = 3,00,000 \left[ 1 + \frac{r}{100} \right]^{12}$$

$$\left[ 1 + \frac{r}{100} \right]^{12} = 2 \dots \dots \dots (i)$$

$$\text{Required amount} = 3,00,000 \left[ 1 + \frac{r}{100} \right]^{48} = 3,00,000 \times (2)^4 = 48 \text{ lac}$$

S5. Ans(c)

Sol:

Let the marked price of article A and B be Rs 3y and 4y respectively  
ATQ

$$\frac{4y \times (100 - (x + 8))}{100} \times \frac{100}{120} = \frac{3y \times (100 - x)}{100}$$

$$x = 20$$

Now,

$$\frac{3y \times 90 \times 60}{100 \times 100} = 972$$

$$y = 600$$

Marked price of article B=Rs 2400

S6. Ans.(a)

Sol.

Radius of sphere = 21 cm

Radius of toy =  $21 \times \frac{2}{3} = 14$  cm

Let the height of cylindrical base of toy be h cm.

∴ Height of conical top of that toy = 3 h cm.

ATQ,

$$\frac{4}{3} \times \pi \times (21)^3 = \frac{1}{3} \pi \times (14)^2 \times 3h + \pi \times (14)^2 \times h$$

$$\Rightarrow h = 31.5 \text{ cm}$$

Total height of toy = 4 h = 126 cm



S7. Ans.(b)

Sol. Let total monthly salary of Veer be 'Rs. x'.

Veer's monthly saving =  $\frac{10}{100} \times x$

$$= \frac{x}{10}$$

Veer's monthly investments

$$= \frac{90}{100} \times x \times \frac{3}{8}$$

$$= \frac{27x}{80}$$

ATQ,

$$\frac{27x}{80} - \frac{x}{10} = 7600$$

$$x = \text{Rs. } 32,000$$

S8. Ans.(c)

Sol.

Let the monthly salary of Ayush be Rs x

Then,

$$\text{Expense on accommodation} = x \times \frac{44}{100} = \frac{44x}{100}$$

$$\text{Remaining salary} = x - \frac{44x}{100} = \frac{56x}{100}$$

$$\text{Expense on study material} = \frac{56x}{100} \times \frac{1}{8} = \frac{7x}{100}$$

$$\text{Remaining amount} = \frac{56x}{100} - \frac{7x}{100} = \frac{49x}{100}$$

$$\text{Expense on buying clothes} = \frac{49x}{100} \times \frac{5}{7} = \frac{35x}{100}$$

$$\text{Remaining amount} = \frac{49x}{100} - \frac{35x}{100} = \frac{14x}{100}$$

$$\text{Abhi's monthly salary} = \frac{252000}{12} = \text{Rs } 21,000$$

$$\text{Saving of Ayush} = \frac{14x}{100} = 16\frac{2}{3}\% \text{ of } 21000$$

$$\Rightarrow x = 25,000$$

$$\text{Expenses on study material} = 25000 \times \frac{7}{100} = \text{RS } 1,750$$

S9. Ans(d)

Sol.

Let cost price be Rs 100x.

Then, marked price of article = Rs 160x.

Selling price of article

$$= 160x \times \frac{7}{8} \times \frac{9}{10} \times \frac{4}{5}$$

$$= \text{Rs. } \frac{504}{5}x$$

2<sup>nd</sup> selling price

$$= 160x \times \frac{7}{8} \times \frac{4}{5}$$

$$= 112x \text{ Rs.}$$

Given

$$112x - \frac{504}{5}x = 224$$

$$\frac{56}{5}x = 224$$

$$x = 20$$

$$\text{Cost price} = 100 \times 20 = 2000 \text{ Rs.}$$

S10. Ans.(b)

Sol.

Let natural number be 'x'

So,

ATQ

$$\frac{7}{6}x = \text{Natural ... (i)}$$

$$\Rightarrow \frac{9x}{8} = \text{Natural ... (ii)}$$

$$\Rightarrow \frac{1}{3}x = \text{Natural ... (iii)}$$

From these three equations we can conclude that the least number contain  $3 \times 8$

Least number = 24

S11. Ans.(b)

Sol.

A does work in  $\rightarrow 15$  days

$\therefore$  B can do in  $\rightarrow \frac{15}{2}$  days

Now, Let B worked for  $x$  days.

$$A/q, \frac{11}{15} + \frac{x \times 2}{15} = 1$$

$$\Rightarrow 2x + 11 = 15$$

$$x = 2 \text{ days}$$

So, they worked together for 2 days.

S12. Ans.(d)

Sol.

We can conclude

$$A: (B + C + D) = 100: 460 = 10: 46$$

$$\Rightarrow A's \text{ contribution} = 10 \text{ lakhs}$$

$$\& B: (A+C+D) = 100: 366.66$$

$$= 3: 11 = 12: 44$$

$$\Rightarrow B's \text{ contribution} = 12 \text{ lakh}$$

$$\& C: (A + B + D) = 40: 100$$

$$= 2: 5 = 16: 40$$

$$\Rightarrow C's \text{ Contribution} = 16 \text{ lakh}$$

Hence, the contribution of D =  $56 - (10 + 12 + 16) = 18$  lakhs

S13. Ans.(d)

Sol.

Given

$$SP = 5 \text{ (Discount)}$$

$$SP = 5 [MP - SP]$$

$$\Rightarrow MP = \frac{6}{5} SP \quad \dots (i)$$

Also,

$$\%D = \%P$$

$$\frac{MP-SP}{MP} \times 100 = \frac{SP-CP}{CP} \times 100 \quad (\text{Discount is always on MP})$$

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$$\frac{\frac{6}{5}SP - SP}{\frac{6}{5}SP} = \frac{SP - CP}{CP}$$

$$\Rightarrow \frac{1}{6} = \frac{SP - CP}{CP}$$

$$\Rightarrow 7CP = 6SP$$

$$\Rightarrow CP = \frac{6}{7}SP \quad \dots \dots (ii)$$

$$\frac{D}{C} = \frac{\left(\frac{6}{5}SP - SP\right)}{\frac{6}{7}SP} = \frac{\frac{1}{5}SP}{\frac{6}{7}SP} = \frac{7}{30} = 7 : 30$$

S14. Ans.(d)

Sol.

Let sum be Rs P

ATQ,

$$1008 = \frac{P \times 11 \times 5}{100} - \frac{P \times 8 \times 6}{100}$$

On solving, P = Rs. 14,400

S15. Ans.(c)

Sol.

A - 24                      20

B - 32   480              15

C - 60                      8

Work done in 6 days = 258 units by A, B and C.

Work done in next 2 days = 46 units by B & C

∴ Remaining work = 480 - 258 - 46 = 176 unit

∴ Extra time taken by C =  $\frac{176}{8} = 22$  day



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