Quiz Date: 28th June 2020

Q1. Neeraj and gaurav started a business in partnership by investing Rs. 10,000 and Rs. 4000 respectively. Condition of partnership is that gourav got Rs. 100 per month for management of the business. After paying 5% interest on the capital, remaining annual profit has distributed in the ratio of their investment. Find the share of their profit, if the annual profit is Rs. 4000.
(a) Rs. 3000 and Rs1000
(b) Rs. 2500 and Rs1500
(c) Rs. 1500 each
(d) Rs. 2000 each
(e) None of these

Q2. A, B and C entre into partnership by investments in the ratio 3 : 5 : 7. After a year, C invests another Rs. 337600 while A withdraws Rs. 45600. The ratio of investments then changes to 24 : 59 : 167. How much did A invest initially?
(a) Rs. 45600
(b) Rs. 96000
(c) Rs. 141600
(d) Rs. 156000
(e) None of these

Q3. The number of students in a class is 689 and number of girls in the class is $16\frac{2}{3}\%$ more than that of boys. If average marks of all the boys is 22.22% more than that of girls whereas average marks of the class is 129. Find out the average marks of the boys in the class.
(a) 135
(b) 138
(c) 126
(d) 143
(e) 148

Q4. The ratio of water and alcohol in the container A and container B is 2:3 and 8:7 respectively. If both the mixtures are mixed in a new container C in the ratio of $(x-2):(x-1)$ respectively, then ratio of water to alcohol in the container C is $(2x):(2x+1)$. find the value of x ?
(a) 1
(b) 3
(c) 4
(d) 5
(e) 6

Q5. Train A crosses a 320m long platform in 42 seconds. Train B which is 160m long and running at 96km/hr crosses Train A in $\frac{78}{11}$ $seconds$, while running in opposite direction. Then, find in how much time will Train A cross a pole?
(a) 18 seconds

(b) 12 seconds
(c) 10 seconds
(d) 7 seconds
(e) 15 seconds

Q6. There are two bags –A & B. Bag-A contains 10 red balls and 5 white balls and Bag-B contains 9 white balls and 6 red balls. If a bag is chosen randomly and two balls are drawn (without replacement) from it , then find the probability of getting at least 1 red ball.
(a) $\frac{82}{105}$
(b) $\frac{38}{105}$
(c) $\frac{79}{105}$
(d) $\frac{97}{105}$
(e) None of the above.

Q7. In family of Sandeep, there are six members i.e. himself, his wife and four children. If the average age of the family immediately after the birth of first, second, third and fourth child was 16, 15, 16 and 16 years respectively then find the age of his eldest son if the present average age of entire family is 17 years?
(a) 12.2 years
(b) 12.5 years
(c) 12.8 years
(d) 13 years
(e) 13.2 years

Q8. Aman is 50% more efficient than Ravi while 20% more efficient than Mohan. If Ravi and Aman together can complete a work in 18 days, then in what time Ravi and Mohan can complete the same work if they work alternatively starting from Ravi ?
(a) 32 $\frac{8}{11}$ days
(b) 20 days
(c) 40 days
(d) 36 days
(e) 30 days

Q9. A policeman starts to chase a thief. When the thief goes 10 steps the policeman moves 8 steps and 5 steps of the policeman are equal to 7 steps of the thief. The ratio of the speeds of the policeman and the thief is:
(a) 25 : 28
(b) 25 : 26
(c) 28 : 25
(d) 56 : 25
(e) 14:27

Q10. In how many different ways can 4 boys and 3 girls be arranged in a row such that all boys stand together and all the girls stand together?
(a) 75
(b) 576
(c) 288
(d) 24
(e) 121

Directions (11-15): What value will come in place of question mark (?) in the given questions?

Q11. $(36)^3 \times (4096)^{\frac{1}{2}} \times (38)^2 \div (9^3 \times 76^2) = 4^?$
(a) 7
(b) 3
(c) 5
(d) 8
(e) 6

Q12. $(4809 + 9616 + 14425) \div 5 + 6 = (?)^2$
(a) 92
(b) 67
(c) 72
(d) 76
(e) 84

Q13. $40\%\ of\ ? + 55\%\ of\ 360 = 36\%\ of\ 450 + 10^2$
(a) 64
(b) 320
(c) 160
(d) 80
(e) 200

Q14. $\sqrt{144} \times \sqrt{324} \div 4\left(\frac{1}{3} \div 24\right) = \frac{(54)^2}{?}$
(a) 432
(b) 0.75
(c) 243

(d) $\frac{3}{64}$
(e) 1.5

Q15. $3^4 \div 36^2 \times 24^3 = \frac{?^3}{2}$
(a) 16
(b) 14
(c) 6
(d) 18
(e) 12

Solutions

S1. Ans.(d)
Sol.
gourav profit share in 1 year for management = 12 × 100 = Rs. 1200
Interest of neeraj capital= $\frac{10,000\times5\times1}{100}$ = Rs. 500
Interest of gourav capital = $\frac{4000\times5\times1}{100} = \boldsymbol{Rs.200}$
Total profit of neeraj and gourav(management and interest) = (1200 + 500 + 200) = Rs. 1900
Remaining profit = 4000 – 1900 = Rs. 2100

	neeraj	:	gourav
Capital	10000		4000
	5	:	2

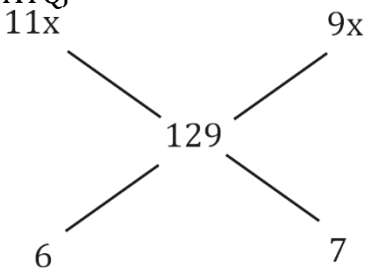
Share of neeraj in remaining profit = $\frac{5}{7} \times \boldsymbol{2100} =$ Rs. 1500
Share of gourav in remaining profit = $\frac{2}{7} \times \boldsymbol{2100} =$ Rs. 600
Total profit of neeraj = 500 + 1500 = Rs. 2000
Total profit of gourav = 1200 + 600 + 200 = Rs. 2000

S2. Ans.(c)
Sol. Let the initial investments of A, B, C be Rs. 3x, 5x and 7x respectively. Then,
(3x – 45600) : 5x : (7x + 337600) = 24 : 59 : 167

$$\Rightarrow \frac{3x - 45600}{5x} = \frac{24}{59} \Rightarrow x = 47200.$$

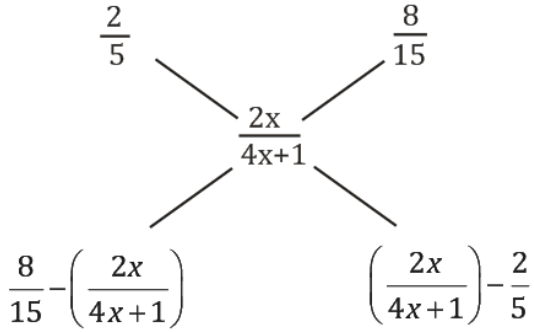
∴A initially invested Rs. (47200 × 3) = Rs. 141600.

S3. Ans. (d)
Sol.
The ratio of boys and girls in the class = 6:7
Average marks of boys and girls = $11x$ *and* $9x$ *unit*
Respectively.
ATQ,



So, $\frac{11x-129}{129-9x} = \frac{7}{6}$
$x = 13$
So, average marks of boys in the class=143

S4. Ans. (d)
Sol.



$\frac{\frac{8}{15}-(\frac{2x}{4x+1})}{(\frac{2x}{4x+1})-\frac{2}{5}} = \frac{x-2}{x-1}$
$\frac{2x+8}{6x-6} = \frac{x-2}{x-1}$
$x^2 - 6x + 5 = 0$
$(x-5)(x-1) = 0$
So, $x = 5$
$x \neq 1$ (because ratio can,t be negative)

S5. Ans.(c)
Sol. Let speed of train – A be 'V m/sec' and length of train -A be x.
ATQ.

$V = \frac{x+320}{42}$ -------- (i)

And

$V + 96 \times \frac{5}{18} = \frac{160+x}{\left(\frac{78}{11}\right)}$

$V + \frac{80}{3} = \frac{11(160+x)}{78}$

$V = \frac{11(160+x)}{78} - \frac{80}{3}$ ------- (ii)

Solving (i) & (ii)

$\frac{x+320}{42} = \frac{11(160+x)}{78} - \frac{80}{3}$

$\frac{x+320}{42} = \frac{(1760+11x) - 80 \times 26}{78}$

$\Rightarrow$ x = 100 meters

Put value of x in (i)

$V = \frac{100+320}{42}$

V = 10 m/sec

So, required time = $\frac{100}{10}$ = 10 sec

S6. Ans.(a)

Sol. Probability of selecting a bag = $\frac{1}{2}$

Required probability = $\frac{1}{2}\left(\frac{^{10}C_2}{^{15}C_2} + \frac{^{10}C_1 \times {}^5C_1}{^{15}C_2}\right) + \frac{1}{2}\left(\frac{^6C_2}{^{15}C_2} + \frac{^6C_1 \times {}^9C_1}{^{15}C_2}\right)$

$= \frac{1}{2}\left(\frac{45}{105} + \frac{50}{105}\right) + \frac{1}{2}\left(\frac{15}{105} + \frac{54}{105}\right)$

$= \frac{1}{2} \times \frac{95}{105} + \frac{1}{2} \times \frac{69}{105}$

$= \frac{95+69}{210} = \frac{164}{210} = \frac{82}{105}$

S7. Ans.(e)

Sol:

At the birth of first child

Total age of family=$16 \times 3 = 48\ years$

Let birth of second child takes place after t_1 years

$t_1 = \frac{15 \times 4 - 48}{3} = 4\ years$

Let birth of third child takes place after t_2 years

$t_2 = \frac{16 \times 5 - 15 \times 4}{4} = 5\ years$

Let birth of fourth child takes place after t_3 years

$t_3=\frac{16\times6-16\times5}{5}$=3.2 years

present age of youngest child=$\frac{17\times6-16\times6}{6}$=1 years

present age of eldest child=13.2 years

S8. Ans.(c)

Sol.

Let, efficiency of Ravi = x

Efficiency of Aman $= 1.5x$

Efficiency of Mohan $= 1.5x \times \frac{100}{120} = 1.25x$

Ratio of efficiency of Ravi, Aman and Mohan is x : 1.5x : 1.25x = 4 : 6 : 5

Ratio of time taken by them alone to complete the work

$= \frac{60}{4} : \frac{60}{6} : \frac{60}{5} = 15 : 10 : 12$

ATQ,

$\frac{15\times10}{15+10} = \frac{150}{25} = 6$

Now, $6 \underset{\times3}{\longrightarrow} 18$

⇒ Ravi, Aman and Mohan can complete the work alone in 45, 30, 36 days respectively.

Required time $= \frac{45\times36\times2}{45+36}$

$= 40$ days

S9. Ans.(c)

Sol.

	Police	:	Thief
Steps :–	8	:	10
Distance:–	7	:	5
	56		50

Speed = 28 : 25

S10. Ans.(c)

Sol.

Required no. of ways = $2(4! \times 3!)$

$= 2 \times 4 \times 3 \times 2 \times 3 \times 2$

$= 288$

S11. Ans.(c)

Sol.

$4^{?} = \frac{36^3 \times \sqrt{4096} \times 38^2}{9^3 \times 76^2}$

$4^{?} = \frac{4^3 \times 9^3 \times 4^3 \times 38 \times 38}{9^3 \times 76 \times 76}$

$4^{?} = \frac{4^3 \times 4^3}{2 \times 2}$
or, $4^{?} = 4^3 \times 4^2 = 4^5$
$\therefore ? = 5$

S12. Ans. (d)
Sol.
$(?)^2 = \frac{4809 + 9616 + 14425}{5} + 6$
$(?)^2 = \frac{28850}{5} + 6$
$(?)^2 = 5770 + 6$
$(?)^2 = 5776$
$? = \sqrt{5776}$
$? = 76$

S13. Ans.(c)
Sol.
40% of $? + 55\%$ of $360 = 36\%$ of $450 + 10^2$
$\frac{2}{5} \times ? + \frac{11}{20} \times 360 = \frac{36}{100} \times 450 + 100$
$\frac{2}{5} \times ? + 198 = 162 + 100$
$\frac{2}{5} \times ? = 262 - 198$
$\frac{2}{5} \times ? = 64$
$? = 160$

S14. Ans.(b)
Sol.
$\sqrt{144} \times \sqrt{324} \div 4\left(\frac{1}{3} \div 24\right) = \frac{(54)^2}{?}$
$12 \times 18 \div (4 \div 72) = \frac{(54)^2}{?}$
$? = \frac{54 \times 54 \times 4}{12 \times 18 \times 72} = \frac{3}{4} = 0.75$

S15. Ans.(e)
Sol.
$3^4 \div 36^2 \times 24^3 = \frac{?^3}{2}$
$\frac{3^4}{36^2} \times 24^3 \times 2 = ?^3$
$?^3 = 1728$
$? = 12$