Quiz Date: 20th April 2020

Q1. Hari Lal and Hari Prasad have equal amounts. Hari Lal invested all his amount at 10% compound annually for 2 years and Hari Prasad invested ¼ at 10% compound interest (annually) and rest at r% per annum at simple interest for the same 2 years period. The interest received by both at the end of 2 years is same. What is the value of r?
(a) 14%
(b) 12.5%
(c) 10.5%
(d) 11%
(e) None of these

Q2. 40 men could have finished the whole project in 28 days but due to the inclusion of a few more men, work got done in 4/5 of the time. Find the ratio of total number of men finally to number of men initially.
(a) 12 : 19
(b) 20 : 27
(c) 27 : 20
(d) Cannot be determined
(e) None of these

Q3. A contract is to be completed in 46 days and 117 men were set to work, each working 8 hours a day. After 33 days, 4/7 of the work is completed. How many additional men may be employed so that the work may be completed in time, each man now working 9 hours a day ?
(a) 80
(b) 81
(c) 82
(d) 83
(e) None of these

Q4. In nuts and bolts factory, one machine produces only nuts at the rate of 100 nuts per minute and needs to be cleaned for 5 minutes after production of every 1000 nuts. Another machine produces only bolts at the rate of 75 bolts per minute and needs to be cleaned for 10 minutes after production of every 1500 bolts. If both the machines start production at the same time, what is the minimum duration required for producing 9000 pairs of nuts and bolts ?
(a) 130 minutes
(b) 135 minutes
(c) 170 minutes
(d) 180 minutes
(e) None of these

Q5. A hemispherical bowl is filled to the brim with a beverage. The contents of the bowl are transferred into a cylindrical vessel whose radius is 50% more than its height. It the diameter is same for both the bowl and the cylinder, the volume of the beverage in the cylindrical vessel is:

(a) $66\frac{2}{3}\%$

(b) $78\frac{1}{2}\%$

(c) 100%

(d) More than 100%

(e) None of these

Q6. 5 men and 3 boys can together cultivate a 23-acre field in 4 days and 3 men and 2 boys together can cultivate a 7-acre field in 2 days. How many boys will be needed together with 7 men, if they cultivate 45 acres of field in 6 days.

(a) 2

(b) 4

(c) 6

(d) 8

(e) 10

Q7. A pipe can fill a cistern in 12 min and another pipe can fill it in 15 min but a third pipe can empty it in 6 minutes. The first two pipes are kept open for 5 minutes in the beginning and then the third pipe is also opened. Time taken to empty the cistern is:

(a) 38 minutes

(b) 22 minutes

(c) 42 minutes

(d) 45 minutes

(e) 50 minutes

Q8. The average marks of Sameer decreased by 1, when he replaced the subject in which he has scored 40 marks by two other subjects in which he has just scored 23 and 25 marks respectively. Later he has also included 57 marks of Computer Science, then the decreased average marks obtained after first step, increases by 2. How many subjects were there initially?

(a) 24

(b) 12
(c) 15
(d) 18
(e) can't be determined

Q9. A train covers certain distance between two places at a uniform speed. If the train moved 10 kmph faster, it would take 2 hours less, and if the train were slower by 10 kmph, it would take 3 hours more than the scheduled time. Find the distance covered by the train.
(a) 300 km
(b) 600 km
(c) 800 km
(d) 1200 km
(e) 1000 km

Q10. A motorboat travelling at a certain speed, can cover 25 km upstream and 39 km downstream in 8 hours. At the same speed, it can travel 35 km upstream and 52 km downstream in 11 hours. The speed of the stream is:
(a) 2 kmph
(b) 3 kmph
(c) 4 kmph
(d) 5 kmph
(e) 8 kmph

Directions (11-15): What will come in place of question mark in the following number series?

Q11. 12, 6.5, 11, 7.5, 10, 8.5, ?
(a) 9.5
(b) 9
(c) 10
(d) 10.5
(e) 8

Q12. 13, 10, 4, –5, –17, ?
(a) –34
(b) –22
(c) –32
(d) 34
(e) -2

Q13. 3645, 1215, 405, 135, ? , 15, 5
(a) 45
(b) 75
(c) 65
(d) 55
(e) 35

Q14. 5, 13, 58, 357, 2868, ?
(a) 25823
(b) 28695
(c) 29548
(d) 28545
(e) 27695

Q15. 32, 36, 52, 88, 152, ?
(a) 266
(b) 256
(c) 422
(d) 252
(e) 225

Solutions

S1. Ans.(c)
Sol.
Let amount be Rs. P.

$$P\left(1+\frac{10}{100}\right)^2 - P = \frac{P}{4}\left(1+\frac{10}{100}\right)^2 - \frac{P}{4} + \frac{3P\times 2\times r}{4\times 100}$$
$$\Rightarrow \frac{121}{100} - 1 = \frac{1}{4}\left(\frac{121}{100} - 1\right) + \frac{3r}{200}$$
$$\Rightarrow \frac{3}{4}\left(\frac{121}{100} - 1\right) = \frac{3r}{200}$$
$$\Rightarrow \frac{21}{100} = \frac{r}{50}$$
$$\Rightarrow r = 10.5$$

S2. Ans.(e)
Sol.

$$40 \times 28 = x \times \frac{4}{5} \times 28$$
$$\Rightarrow x = 50$$

Ratio of no. of new men to no. of old men $= \frac{50}{40} = \frac{5}{4}$

S3. Ans.(b)
Sol.
Let, x additional men be employed
117 men were supposed to finish the whole work in 46 × 8 = 368 hrs.
But 117 men completed 4/7 of the work in 33 × 8 = 264 hrs.
∴ 117 men could complete the work in 462 hrs.
Now, (117 + x) men are supposed to do 3/7 of the work working 9 hours a day, in 13 × 9 = 117 hours, so as to finish the work in time.

i.e. (117 + x) men are supposed to complete the whole work in 117×7/3=273 hours
∴ (117 + x) × 273 = 117 × 462
⇒ x = 81

S4. Ans.(c)
Sol.
Machine I:
Time to produce 9000 nuts
$= \frac{9000}{100} + 8 \times 5 = 130$ min.

Machine II:
Time to produce 9000 bolts
$= \frac{9000}{75} + 5 \times 10 = 170$ min.

S5. Ans.(c)
Sol.
Let, height of the cylinder be 'h'.
$$\frac{\frac{2}{3}\pi(1.5h)^3}{\pi(1.5h)^2h} \times 100 = \frac{2\times1.5h}{3\times h} \times 100 = 100\%$$

S6. Ans.(a)
Sol.

Let work done by 1 man in 1 day be m.
And work done by 1 boy in 1 day be b.
4 (5m + 3b) = 23
20m + 12b = 23 ...(i)
2 (3m + 2b) = 7
6m + 4b = 7 ...(ii)
Multiplying (ii) by 3 & solving
$m = 1,\ b = \frac{1}{4}$
Let number of boys required be x
$6\left(7 \times 1 + x \times \frac{1}{4}\right) = 45$
$\therefore x = 2$

S7. Ans.(d)
Sol.
Let the number of minutes taken to empty the cistern be x minutes.
According to the question,
$\frac{x}{6} - \frac{x+5}{12} - \frac{x+5}{15} = 0$
$\Rightarrow \frac{x}{6} - \frac{x}{12} - \frac{5}{12} - \frac{x}{15} - \frac{5}{15} = 0$
$\Rightarrow \frac{x}{6} - \frac{x}{12} - \frac{x}{15} = \frac{5}{12} + \frac{5}{15}$
$\Rightarrow \frac{10x-5x-4x}{60} = \frac{25+20}{60}$
$\Rightarrow \frac{x}{60} = \frac{45}{60} \Rightarrow x = 45$ minute

S8. Ans.(c)
Sol.
Let the number of subjects be n and average marks be x, then, total marks $= nx$
Again $(n+1)(x-1) = (nx - 40) + (23 + 25)$
$\Rightarrow x - n = 9$ ... (i)
Further $(n+2)(x+1) = (nx - 40) + (23 + 25) + 57$
$\Rightarrow nx + 2x + n + 2 = nx + 65$
$\Rightarrow 2x + n = 63$ ... (ii)
Solving equation (i) and (ii), we get
$n = 15$

S9. Ans.(b)
Sol.

Let speed of train = S kmph
Scheduled time = T hours
∴ (S + 10) (T - 2) = ST
−2S + 10T = 20
And, (S - 10) (T + 3) = ST
3S − 10T = 30
S = 50 kmph
T = 12 hours
Then the distance = S × T = 50 × 12
= 600 km

S10. Ans.(c)
Sol.
Let the speed of a boat in still water and stream be x and y kmph respectively.
Speed of boat along stream = (x + y) kmph
And speed of boat against stream = (x − y) kmph
According to the question,
$\frac{25}{x-y}+\frac{39}{x+y}=8$ .....(i)
And $\frac{35}{x-y}+\frac{52}{x+y}=11$ .....(ii)
On solving equation (i) and (ii), we get
x = 9 and y = 4
Hence, speed of stream = 4 kmph

S11. Ans.(b)
Sol.
Pattern is
−5.5, +4.5, −3.5, +2.5, −1.5, +0.5
∴ ? = 8.5 + 0.5
= 9

S12. Ans.(c)
Sol.
Pattern is − 3, − 6, − 9, − 12, − 15
∴ ? = − 17 − 15
= − 32

S13. Ans.(a)
Sol.

Pattern is $\div 3, \div 3, \div 3, \div 3, \div 3$

$\therefore ? = 135 \div 3$

$= 45$

S14. Ans.(b)

Sol.

Series is

$5 \times 2 + 3 = 13$

$13 \times 4 + 6 = 58$

$58 \times 6 + 9 = 357$

$357 \times 8 + 12 = 2868$

$2868 \times 10 + 15 = 28695$

S15. Ans.(d)

Sol.

Series is