**Statement Test 5**

**1. Piyush travels from Agra to Patna in 4 equal parts. In first part, he travelled on car at the speed of 24km/hr, in the second part he travelled on train at the speed of 40km/hr . Then he took a bike and travelled at the speed of 30km/hr. And he travelled the remaining distance with bus at the speed of 15km/hr. Find his average speed?**
a.35 b.30 c.25 d.24 e.20

**2. Two trains start at the same time from two stations and proceed towards each other at the speed of 20kmph and 25kmph respectively. When they meet it is found that one train has travelled 50km more than the other. Find the distance between the two stations?**
a.450km b.480km c.510km d.420km e. 380km

**3. Satshivam can finish a work in 18 days. Altmash takes 2.5 times more time than Balasubramanyam and Balasubramanyam takes half as many days as Satshivam to finish the work alone. They work in pairs starting with Satshivam and Altmash on the first day, Altmash and Balasubramanyam on the 2nd day and Satshivam and Balasubramanyam on the 3rd day, and so on. How many days will be required to finish the work?**
A. 6 **6/13** days B. 7 **7/13** days C. 7 **5/14** days D. 7 **5/13** days E. 6 **6/11** days

**4: Ramesh started a business with an investment of Rs 1500. After some months, Sohan joined the business with Rs 3000, and after 3 more months, Mohit joined with Rs 4500. If the annual profit shares of Ramesh and Sohan are equal, then for how many months did Mohit invest his money?**
(A) 4 months (B) 3 months (C) 5 months (D) 6 months (E) 2 months

**5: The total cost of 6 stools and 4 desks is Rs 7200. If the cost price of one stool is Rs 300 less than the cost price of one desk, find the cost price of one desk.**
(A) Rs 750 (B) Rs 800 (C) Rs 850 (D) Rs 900 (E) Rs 950

**6. A dealer incurred a loss of 20%, when he allowed a discount of 25% on marked price of an article. Then what per cent discount should he allow on the marked price so as to gain Rs. 900 on the article, if the marked price of the article is Rs. 40,000?**
A. 5% B. 7% C. 6% D. 3% E. None

**7. A pickpocket stole the wallet of Mr. Jitender. Jitender remembers that before he lost his wallet he bought a notebook and a marker. He pays 1/5th of his money for buying the notebook, and of the remaining, he spends 25% on buying marker which is equal to Rs. 12. Find the amount of money lost by Mr. Jitender.**
A. Rs. 125 B. Rs. 75 C. Rs. 100 D. Rs. 60 E. None of these

**8. Aman goes to park daily. His last week average speed with which he completed one round of the park was 47Km/h, for the first four days was 37Km/h, and that for the last four days was 52.5Km/h. Find out the time taken by Aman to travel 203 Km if he travels with the speed of the fourth day.** A. 7 hours B. 8 hours C. 6 hours D. 5.5 hours E. None of these

**9. Murli and Manohar start a business together investing Rs. 40000 and Rs. 50000 respectively. Joshi joins them after a certain number of months investing Rs. 60000 in the venture. Everything goes well till Manohar decides to quit before the exactly same number of months as Joshi'd joined the business after. If at the end of the year, they share their profits in the ratio of 16 : 15 : 18, find the number of months given in the reference.**
A. 8 B. 4 C. 3 D. 2 E. None of these

**10. Person A can complete a work alone in X number of days. Another person B has an efficiency of 80% as compared to A. A and B started working together, such that person A works for all days and person B works for alternative days. If B started with A on day 1, the time taken by them to finish the work is 37 days. The value of X is**
a) 53 days b) 54.2 days c) 50 days d) 53.8 days e) 52.2 days

**11. I bought 3 apple and 5 banana at Rs. 67. After eating 1 apple, I sold the remaining fruits to Raja at Rs. 67. Raja, after eating 1 apple and 1 banana, sold the remaining fruits to Sam at Rs. 67. If Raja had an effective profit of 35% in this manner, how much percentage profit did I earn?** a) 40% b) 27% c) 20% d) 41.25% e) None of these

**12. Rahul invests Rs.5000 in simple interest scheme at the rate of x% per annum for 5 years and Sam invests same amount in another simple interest scheme at the rate of (x + 5)% per annum for 3 years. If the difference between the interest received by Sam and Rahul is Rs.250, then find the value of x.**
a) 5% b) 8% c) 10% d) 15% e) None of these

**13. A train X running at the speed of 126 km/hr crosses a man running at 18 km/hr in opposite direction in 12 seconds and crosses a platform ''A'' in 20 seconds. Find the time taken by train Y running at 99 km/hr to cross the platform ''B''. The length of the platform ''B'' is 70 m more than the length of the platform "A" and the length of train Y is equal to the length of train "X".**
a) 24 seconds b) 28 seconds c) 36 seconds d) 32 seconds e) 22 seconds

**14. A, B, and C together can complete a piece of work in 25 days. A and C together can complete 30% of the work in 12 days and B and C together can complete 75% of the work in 33 days. A is 50% more efficient than C. In how many days (approximate integer value) B alone can complete the whole work?**
a) 72 days b) 75 days c) 79 days d) 85 days e) 82 days

**15. A boat takes 3 hours to go upstream from B to A and downstream from A to B. If the speed of the boat in still water is 9 km/h and the speed of the stream is 3 km/h then, what is the distance (in km) between A and B?**
(a) 12 (b) 7.5 (c) 6 (d) 4

**16. Two places A and B are 100 km apart on a highway. One car starts from A and another from B at the same time. If the cars travel in the same direction at constant speed, they meet in 5 hours. If the cars travel towards each other, they meet in one hour. What is the speed of the car running faster?**
(a) 60 km/h (b) 50 km/h (c) 40 km/h (d) 32 km/h

**17. Hari and Ravi accepted to complete a work in Rs 375. Hari alone can complete that work in 20 hours and Ravi alone can complete that work in 30 days. With the help of Shyam they complete the work in 8 hours then how much labour charge should they give to Shyam?**
(a) Rs 100 (b) Rs 125 (c) Rs 175 (d) none of these

**18. There are some boys and some girls in a room. The square of the number of girls is 28 less than the square of the number of boys. If there were two more girls then the number of boys and girls would have been same. What is the total number of boys and girls in the room?** (a) 56 (b) 14 (c) 10 (d) 7

**19. The average age of a group of persons going for a picnic is 17.75 years. 12 new persons with an average age of 14.25 years join them due to which the average age of group becomes 16 years. Find the number of persons initially**.
(a) 11 (b) 12 (c) 14 (d) 10

**20. A, B and C start a business. A invests four times as much as B invests and the investment of C was x% less than that of B. At the end of one – year, out of total profit of Rs. 5700, A's share was Rs. 4000. What was the difference between B's share and that of C's share?** A. Rs. 1200 B. Rs. 1500 C. Rs. 200 D. Rs. 300 E. None of these

**21. Ram and Shyam invest in a partnership. Ram invests Rs. 7200 but 4 months later withdraws 25% of it , while Shyam invests Rs. 5400 and 6 months later invests 11.11% more. What is the profit of Shyam at the end of the year out of a total profit of Rs. 3042?**
A. Rs. 1472 B. Rs. 1642 C. Rs. 1542 D. Rs. 1482 E. None of these

**22. A gets Rs. 6750 out of the total profit of Rs. 9000 when he invested Rs. 10500 more than his partner, for a period of 8 months. His partner, B invested his capital for the whole year. What was the amount invested by A?**
A. Rs. 13500 B. Rs. 15300 C. Rs. 13050 D. Rs. 12500 E. Rs. 15200

**23. A boat goes 204 km upstream and 266 km downstream in 13 hrs, when the speed of stream is 2 km/h. What will be the distance (in km) covered by boat going downstream for 8 hrs when the speed of stream is 3 km/h?**
A. 340 B. 336 C. 312 D. 296 E. None of these

**24. The speed of boat A is 2 km/hr less than the speed of boat B. The time taken by boat A to cover a distance of 20 Km downstream is 30 min more than the time taken by B to cover the same distance downstream. If the speed of the current is one-third of the speed of boat A, what is the speed of boat B?** A. 9 kmph B. 8 kmph C. 7 kmph D. 6 kmph E. None of these

**1. D**

LCM of 24,40,30,15=120

Average speed= $\boldsymbol{\frac{total\ distance}{time\ taken}}$

$=\boldsymbol{\frac{120+120+120+120}{5+3+4+8}}$

$=\boldsymbol{\frac{480}{20}}$

=24

**2. (a)**

Let train A speed=20

Train B speed=25

$\boldsymbol{\frac{d}{20}=\frac{d+50}{25}}$

25d=20d+1000

D=200

Total distance=d+d+50

=200+200+50

= 450

**3. B**

Satshivam can complete work in = 18 days

Balasubramanyam can complete work in = 9 days

Altmash can complete work in = 22.5 days

LCM of 18, 9, 22.5 is 90 units

1 day work S+A = 9 units

2 day work B+A = 14 units

3 day work S+B = 15 units

So, 3 day work is 38 units

Another 3 day work is 38 units

So, 6 days work = 76 units

Now on 7th day S+A will work = 76+9 = 85 units

So, 8 $\boldsymbol{1/15}$ days are required to complete the work.

**4. Option B**

In partnership, profit is divided in the ratio of investment × time. Ramesh invested Rs 1500 for the whole year. So, Ramesh's capital-months = 1500 × 12 = 18000 Let Sohan invested for x months. Sohan's investment = Rs 3000 So, Sohan's capital-months = 3000 × x Given that Ramesh's and Sohan's annual profit shares are equal. So, 3000 × x = 18000 x = 18000 ÷ 3000 x = 6 months Therefore, Sohan invested for 6 months. Mohit joined 3 months after Sohan. So, Mohit invested for 6 − 3 = 3 months.

**5. Option D**

Let the cost price of one desk be Rs x. Then the cost price of one stool = Rs (x − 300). According to the question: Cost of 6 stools + Cost of 4 desks = Rs 7200 So, 6(x − 300) + 4x = 7200 6x − 1800 + 4x = 7200 10x − 1800 = 7200 10x = 9000 x = 900

**6. E**

SP when 25% discount is allowed = 75% of 40,000 = Rs. 30,000

CP when there is loss of 20% = $30000 \times \frac{100}{80}$ = Rs. 37500

SP to gain Rs.900 = Rs. (37500 + 900) = Rs. 38400

New Discount = Rs. (40000 – 38400) = Rs. 1600

Discount % = $1600 \times \frac{100}{40000} = 4\%$

**7. D**

Rs. 60

**8. A**

total speed for the first three days = A

& total speed for the last three days = B

Now,

Total speed for the week, S = 47 × 7 = 329

Total speed for the first four days = A + x = 37 × 4 = 148

Total speed for the last four days = B + x = 52.5 × 4 = 210

According to the question,

A + x + B = S

⇒ (A + x) + (B + x) – x = 329

⇒ 148 + 210 – x = 329

⇒ x = 358 – 329

⇒ x = 29Km/h

Therefore, time taken to travel 203km = $\frac{203}{29}$ = 7 hours

Hence, option A is correct.

**9**

As in all the three investments '0000' are common we can go ahead solving the question without taking them into consideration.

Let the required number of months be x. As per the question,

Investment by Murli = 4 × 12 = Rs. 48
Investment by Manohar = 5 × (12 – x) and
Investment by Joshi = 6 × (12 – x)

And the profit ratio = 16 : 15 : 18

Taking the first two terms from the ratio, we get

$\frac{48}{5 \times (12 - x)} = \frac{16}{15}$

Or (12 – x) = 9 Therefore, x = 3 months

Hence, option C is correct.

**10.** Efficiency of A: B = 100: 80 = 5: 4
Then Total work done by A in 37 days = 37*5
= 185 units Number of alternative days B worked = if start with day1 and finish with 37th day so worked in the alternative days = 19 days Total work done by B in 19 days = 19*4 = 76 units Hence the total work = 185+76 = 261 units Let X = total work/efficiency of A = 261/5 = 52.2 days

**11.** Raja's profit = (1 apple and 1 banana) on (2 apple and 5 banana) = 35%
=>apple + banana = 35/100(2 apple + 5 banana)
=> solving we get = 6 apple = 15 banana
=> apple/banana = 5/2
So, my effective profit = 1 apple on (3 apple and 5 banana)
= 1 apple / 3 apple + 5(2/5) apple
= 1 apple / 5 apple × 100 = 20%
Hence, my effective profit for the whole transaction is = **20%.**

**12.** SI = P * N * R/100
5000 * 5 * x/100 – 5000 * (x + 5) * 3/100 = 250
250x – 150x – 750 = 250
100x = 1000
x = 10%

**13.** Let the length of train X = x meter
Relative speed of train and man when running in opposite direction = 126 + 18
= 144km/hr = 144 * (5/18) = 40 m/s
ATQ,
40 = x/12
x = 480 m
Let the length of the platform "A" = $P_1$
126 * (5/18) = ($P_1$ + 480)/20
35 = ($P_1$ + 480)/20
$P_1$ + 480 = 700
$P_1$ = 220m
The length of platform "B" = $P_2$ = 220 + 70 = 290
Speed of train Y = 99 km/hr = 99 * (5/18) = 27.5 m/s
Time taken by train Y to cross the platform B = (480 + 290)/27.5
= (770)/27.5 = 28 seconds

**14.** Therefore, work of A, B, and C together in one day = 1/25
A and C together can complete 30% of the work in 12 days
100% work will be done in (2/5)*100 = 40 days
Work by A and C together in one day = 1/40
Since A is 50% more efficient than C
Let per day work done by C = x and per day work done by A will be = 150% of x = (150/100)*x = 1.5x
x + 1.5x = 1/40
2.5x = 1/40
x = 1/100
Therefore per day one done by C = 1/100 and
Per day work done by A = 1.5*(1/100) = 1.5/100 = 3/200
Also,
B and C together can complete 75% of the work in 33 days
100% work will be completed in (33/75)*100 = 44 days
Work done by B and C in one day = 1/44
Let the one day work done by B = x
Therefore,
x + 1/100 = 1/44
x = 1/44 – 1/100
x = 7/550
Therefore, days taken by B alone to complete the work = 550/7 = 78.57 (79 approx)

**15.**
**S136. Ans.(a)**
**Sol.**
Let distance between A & B =D
Now,

$$\frac{D}{9+3}+\frac{D}{9-3}=3$$

$$\frac{D}{12}+\frac{D}{6}=3$$

$$\frac{D+2D}{12}=3$$

$$3D=36$$

$$D=12\ km$$

**16.**
**S137. Ans.(a)**
**Sol.**
When the cars travel in the same direction

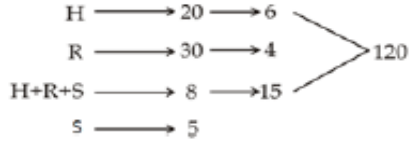
$$\frac{100}{S_1-S_2}=5 \Rightarrow S_1-S_2=20 \quad ..(i)$$

When the cars travel in opposite direction

$$\frac{100}{S_1+S_2}=1 \Rightarrow S_1+S_2=100 \quad ...(ii)$$

Solving (i) & (ii) we get,
$S_1$ = 60 km/h & $S_2$ = 40 km/h
∴speed of the car running faster = 60 km/h

**17.**
**S138. Ans.(b)**
**Sol.**




Efficiency ratio
H:R : S = 6 : 4 : 5
We have, 15 unit = 375
Shyam = 5 unit = $\frac{375}{15} \times 5 = 25 \times 5$ = Rs 125

**18.**
**S140. Ans.(b)**
**Sol.**
We have
$G^2 = B^2 - 28$
$\Rightarrow B^2 - G^2 = 28$ ...(i)
& G + 2 = B
∴ B – G = 2 ...(ii)
From (i)
(B - G) (B + G) = 28
2 (B + G) = 28
⇒ B + G = 14

**19.**
**S185. Ans.(b)**
**Sol.**
let initial number of persons be x.
A/Q, $17.75x + 12 \times 14.25 = (x + 12) \times 16$
$17.75x + 171 = 16x + 192$
$x = 12$

**20.**

Let the investments of B = Rs. 100a then the investments of A = 4 × 100a = Rs. 400a

The investments of C = (100 – x) % of 100a = Rs. (100a – ax)

The ratio of their investments = 400a : 100a : 100a – ax = 400 : 100 : 100 – x

Let us assume that total profit = 400b + 100b + 100b – bx = 5700

A's share = $\frac{4000}{5700} = \frac{40}{57} = \frac{400}{600 - x}$

600 – x = 570

600 – 570 = x

x = 30

The ratio of profit = 400 : 100 : 100 – 30 = 400 : 100 : 70 = 40 : 10 : 7

The difference between B's share and C's share = $\frac{3 \times 5700}{57} = 300$

Hence, option D is correct.

**Alternate Method:-**

A's share = Rs. 4000

Therefore B's share = Rs. 1000 [As Ratio of Investment of A : B = 4 : 1 , so the ratio of their profit will be = 4 : 1]

Therefore C's share = Rs (5700 – 5000) = Rs. 700

Difference between B's and C's share = Rs. (1000 – 700) = Rs. 300

Hence, option D is correct.

**21.**

Investment of Ram = Rs. [7200 × 4 + 75% (7200) × 8] = Rs. 72000

Investment of Shyam = Rs. [5400 × 6 + 111.11% (5400) × 6] = Rs. 68400

Ratio of profit at the end of 1 year = 72000 : 68400 = 20 : 19

The share of Shyam in a profit of Rs. 3042= $\frac{19}{39} \times 3042 = 1482$

Hence, option D is correct.

**22.**

Let the amount invested by B be Rs. x

∴ Amount invested by A = Rs. (x + 10500)

Total value of A's investment for 8 months = 8 × (x + 10500)

Total value of B's investment for 8 months = 12x

$\frac{12x}{[8 \times (x + 10500)]} = \frac{2250}{6750} = \frac{1}{3}$

$\frac{x}{x + 10500} = \frac{2}{9}$

7x = 21000

x = 3000

Amount invested by A = Rs. (10500 + 3000) = Rs. 13500

Hence, option A is correct.

**23.**

Let the speed of boat in still water = B km/hr

$\frac{204}{B - 2} + \frac{266}{B + 2} = 13$

B = 36

Required distance = (36 + 3) × 8 = 312 km

Hence, option C is correct.

**24.**

Let speed of Boat B = x kmph and speed of boat A = (x – 2) kmph

So, speed of current = $(\frac{x - 2}{3})$ kmph

Now according to the question

$\frac{20}{(x - 2) + \frac{x - 2}{3}} = \frac{20}{x + \frac{x - 2}{3}} + \frac{30}{60}$

$\frac{20 \times 3}{3x - 6 + x - 2} = \frac{20 \times 3}{3x + x - 2} + \frac{1}{2}$

$\frac{60}{4x - 8} - \frac{60}{4x - 2} = \frac{1}{2}$

$\frac{15}{x - 2} - \frac{30}{2x - 1} = \frac{1}{2}$

$\frac{30x - 15 - 30x + 60}{(x - 2)(2x + 1)} = \frac{1}{2}$

$2x^2 - 5x - 88 = 0$

$x = 8, -\frac{11}{2}$

So, speed of boat B is 8 kmph

Hence, option (B) is correct.