

Quantitative Aptitude

Time and Work

Level-1

- Q1** Krishna, Mahesh and Gautam can do a work in 90, 30 and 45 days respectively. If they work together, in how many days will they complete work?
 (A) 10 (B) 15
 (C) 25 (D) 30
 (E) 20
- Q2** A can do a piece of work in 3 days and B can do it in 2 days. How much time will be taken by them to do the work together?(days)
 (A) 1.2 (B) 1.4
 (C) 1 (D) 1.6
 (E) None of these
- Q3** A can do a piece of work in 4 hours, B and C can do it in 3 hours. A and C can do it in 2 hours. How long will B alone take to do it?
 (A) 14 hours (B) 6 hours
 (C) 12 hours (D) 15 hours
 (E) 18 hours
- Q4** A can do a piece of work in 6 hours; B and C can do it in $4\frac{4}{5}$ hours. A and C can do it in 4 hours. How long will B alone take to do it?
 (A) 8
 (B) 9
 (C) $9\frac{3}{10}$ days
 (D) $8\frac{3}{10}$ days
 (E) 11 days
- Q5** A can do a work in 15 days while B can do it in 20 days. If both work for 5 days. What part of work has been done?
 (A) $\frac{7}{12}$
 (B) $\frac{5}{13}$
 (C) $\frac{5}{12}$
 (D) $\frac{8}{13}$
 (E) $\frac{9}{13}$
- Q6** Lakshmi can do a piece of work in 6 days, but with the help of her friend Taapsee, she can do it in 4 days. In what time Taapsee can do it alone?
 (A) 4 days (B) 6 days
 (C) 12 days (D) 36 days
 (E) None of these
- Q7** (P + Q) can do a piece of work in 30 days and P can do same work in 90 days. In how many days will Q do this work?
 (A) 40 (B) 50
 (C) 45 (D) 48
 (E) none of these
- Q8** Luv and Kush working together can complete a work in 3 days. If Luv alone completes the same work in 5 days. In how many days Kush alone can complete the same work?
 (A) 10 days (B) 7.5 days
 (C) 15 days (D) 8 days
 (E) None of these
- Q9** 7 men can complete a work in 12 days. They started the work and after 7 days, two men left. In how many days will the work be completed by the remaining men?
 (A) 7 (B) 9
 (C) 10 (D) 11
 (E) None of these
- Q10** 18 women can complete a work in 52 days, then find how many women will be required to complete half of the same work in 36 days?
 (A) 5 (B) 8
 (C) 15 (D) 13
 (E) 10



Q11 Sita and Gita can do a work in 30 days and 50 days respectively. Sita started the work and left after 3 days. Gita took over and completed the work. In how many days was the total work completed?

- (A) 12 days (B) 24 days
(C) 36 days (D) 48 days
(E) None of these

Q12 (P + Q) together can do a piece of work in 30. days. While (Q + R) together we can do a piece of work in 40 days. (R + P) together can do a piece of work in 24 days. In how many days will this work be completed by P, Q and R alone.

- (A) 40, 120, 60 (B) 60, 80, 50
(C) 50, 80, 120 (D) 10, 20, 60
(E) none of these

Q13 17 men can complete a work in 18 days if they work 6 hours a day. How many men are required to complete the same work in 34 days if they work for 2 hrs a day?

- (A) 36 men (B) 30 men
(C) 24 men (D) 35 men
(E) 27 men

Q14 16 men take 24 days to complete a job working 6 hours a day. The number of hours a day should 32 men take to complete the job in 12 days?

- (A) 6 Hours (B) 8 Hours
(C) 7 Hours (D) 9 Hours
(E) 5 hours

Q15 15 men can finish a job in x days. If 5 extra Men join them, the job takes (x-10) days . What is the value of x?

- (A) 20 (B) 30
(C) 40 (D) 50
(E) 60

Q16

A and B together can do a piece of work in 10 days, B and C together can complete the same work in 15 days and A and C together can do the same work in 30 days, then find the total number of days required to complete the work when all A, B and C are working together.

- (A) 10 (B) 12
(C) 15 (D) 18
(E) None of these

Q17 A and B undertake a piece of work for Rs 600. A can do it in 30 days and B can do it in 60 days. With the help of C , they finish it in 10 days. How much should C be paid for her contribution?

- (A) Rs 300 (B) Rs 200
(C) Rs 180 (D) Rs 220
(E) None of these

Q18 13 men working 8 hours a day can complete a work in 18 days. How many hours per day must 16 men work to complete the same work in 26 days?

- (A) 6 Hours (B) 5.5 Hours
(C) 6.5 Hours (D) 4.5 Hours
(E) 8.5 Hours

Q19 12 Women are working for 5 hours a day, completing work in 15 days. If 13 more women joined and all women are working for four hours a day, then in how many days would the work be completed?

- (A) 7 Days (B) 9 Days
(C) 5 Days (D) 8 Days
(E) 10 days

Q20 15 men can do a work in 20 days while 10 womens can do the same work in 25 days . in how many days 6 mens & 5 womens together can do the same work?

- (A) 18 days (B) 20 days
(C) 25 days (D) 50 days
(E) 30 days



Level-2

- Q1** 15 men can do a piece of work in 15 days. Then 25 men can do twice the work in how many days if they are working with 20 % less efficiency ?
 (A) $21\frac{1}{2}$ days
 (B) $22\frac{1}{2}$ days
 (C) 20 days
 (D) 18 days
 (E) 14 days
- Q2** 16 men or 32 women can do a piece of work in 48 days. The ratio of the efficiency of man and boy is 3:2. In how many days will 25 men, 8 women and 16 boys do the work?
 (A) $22\frac{28}{37}$ days
 (B) $20\frac{15}{37}$ days
 (C) $20\frac{28}{37}$ days
 (D) $22\frac{21}{37}$ days
 (E) none of these
- Q3** **Ajay can do a piece of work in 24 days and Sunil can do a piece of work in 8 days if they work on alternative days with Ajay beginning the work, then in how many days the work will be completed?**
 (A) 4 days (B) 5 days
 (C) 6 days (D) 12 days
 (E) None of these
- Q4** 10 male labours can finish the work in 36 days and 20 female laborers can finish the same work in 24 days. If all of them work together, then in how many days will they finish the same work?
 (A) $72/5$ (B) $70/3$
 (C) $75/2$ (D) $71/4$
 (E) $73/4$
- Q5** 18 men take 9 days to complete a piece of work. They worked for a period of 4 days. After that, they were joined by 2 more men. How many more days will be taken by them to complete the remaining Work?
 (A) 2 days (B) 4 days
 (C) 4.5 days (D) 6.5 days
 (E) 3 days
- Q6** Aditi and Nimisha together can finish a job in 24 hours while Nimisha and Rajni together can finish the same job in 20 hours. Rajni alone can finish the whole job in 60 hours. What part of the job will be done by Aditi alone in 40 hours?
 (A) 1/3rd part (B) 2/3rd part
 (C) 2/5th part (D) 3/5th part
 (E) 1/6th part
- Q7** Ajay and Bunty together can complete a piece of work in 28 days while Bunty and Chandani together can complete the same work in 20 days. Ajay worked on it for 6 days, Bunty worked on it for 16 days and Chandani completed rest of the work in 20 days. Find the time taken by Ajay to complete the whole work.
 (A) 60 days (B) 40 days
 (C) 70 days (D) 20 days
 (E) 50 days
- Q8** A can do a piece of work in 20 days while B alone can do it in 30 days. They work together for 5 days and the rest of the work is done by C in 2 days. If they get Rs 1500 for the whole work, B gets Rs x and E gets Rs.2x for doing some other work ,then find the amount earned by E?
 (A) Rs. 400 (B) Rs. 700
 (C) Rs. 900 (D) Rs. 800
 (E) Rs. 500
- Q9** 15 men working 8 hours a day take 40 days to manufacture 18000 articles. If 5 men left the work after 25 days, then how much additional time is required to finish the work?
 (A) 8 days (B) 7.5 days
 (C) 22.5 days (D) 25 days



(E) 10 days

Q10 144 units of work can be completed by 'A' alone in 24 days. 'A' started working alone and joined 'B' after 10 days such that they completed the remaining work in 6 days. Find the number of days taken by 'B' to complete the whole work alone.

- (A) 25 days (B) 15 days
(C) 28 days (D) 18 days
(E) 30 days

Q11 15 men can do a piece of work in 12 days and 30 women can do the same work in 12 days. If the work is started by 5 men and 6 women and they work for 10 days after that all the remaining work is done by 5 men. How many days in total are required to complete the remaining work?

- (A) 20 days (B) 28 days
(C) 30 days (D) 35 days
(E) 25 days

Q12 7 men together can build a bridge in 45 days. A woman is 12.5% less efficient than a man. If 5 women and 2 men work together on building a bridge for 35 days and the remaining bridge is build by one man and one woman together, then find the ratio of total work done by men to that by women, once the whole bridge is build.

- (A) 17:28 (B) 11:5
(C) 28:17 (D) 5:11
(E) None of these

Q13 Ananya and Vaishali together can do a piece of work in 12 days, Vaishali and Sahivani together can do it in 18 days. If Ananya and Vaishali started the work and Ananya left after 4 days. Then Sahivani joined Vaishali and Vaishali left on the 6th day of the work. Sahivani finished it working for 17 days, then in how many days can Ananya alone finish the work?

- (A) $\frac{107}{5}$ days (B) 55 days
(C) 45 days (D) $\frac{108}{7}$ days
(E) None of these

Q14 Aman and Atul together can do a work in 15 days. If Aman increases his efficiency by $33\frac{1}{3}\%$ while Atul decreases his efficiency to 75%, then the time required by them together to do the same work remains the same. Find the time taken by Aman alone to do the amount of work which Atul can do alone in 12 days.

- (A) 12 days (B) 6 days
(C) 48 days (D) 24 days
(E) 30 Days

Q15 A and B together can complete a work in 't' minutes and B and C together can complete the same work in '3t' minutes. If the ratio of A's efficiency to C's efficiency is 6: 1, then in what time A alone can complete the work?

- (A) $\frac{7t}{6}$ minutes
(B) $\frac{3t}{2}$ minutes
(C) $\frac{6t}{5}$ minutes
(D) $\frac{4t}{3}$ minutes
(E) $\frac{5t}{4}$ minutes

Q16 'A' and 'B' together can do some work in 7.5 days. If four days after starting the work, 'A' is replaced by 'C', then the work will be finished in 4 more days. If 'C' takes 25% more time to finish the work alone than that by A, then find the time taken by 'C' to finish the work alone.

- (A) 45 days (B) 15 days
(C) 24 days (D) 36 days
(E) none of these

Q17 10 Men can do a piece of work in 12 days. 12 Women can do 40% of the same work in 8 days and 6 Children can do 75% of the same work in 12 days. If 4 Men, 6 Women and 2 Children start work alternately, then who will be the last to complete the work?

- (A) Men
(B) Women
(C) Children
(D) Can't be determined
(E) None of these

Q18



$(x-1)$ men and $(x+2)$ women together can complete the work in 10 days. If 6 men can complete the work in 20 days and 12 women complete the work in 15 days, then find the value of x .

- (A) 3
- (B) 4
- (C) 5
- (D) 7
- (E) 6

Q19 $(x + 2)$ men working 4 hours a day can complete $(3/10)$ th of a work in 9 days. $(x + 4)$ men working 3 hours a day can complete the remaining work in 20 days. What is x ?

- (A) 3
- (B) 7
- (C) 5
- (D) 10
- (E) none of these

Q20 $(n + 1)$ men working 9 hours a day can complete 30% of a work in 4 days. $(n + 3)$ men working 6 hours a day can complete the remaining work in 10 days. What is the value of n ?

- (A) 6
- (B) 4
- (C) 2
- (D) 3
- (E) none of these



Level-3

- Q1** $(a + 3)$ men working 12 hours a day can complete 30% of a work in 3 days. $(a + 5)$ men working 5 hours a day can complete the remaining work in 12 days. What is the value of a ?
- (A) 1 (B) 2
(C) 3 (D) 4
(E) none of these
- Q2** 14 men and 12 women together can complete a piece of work in 8 days and work done by a woman in one day is half the work done by a man in one day. If 8 men and 4 women started working and after 5 days 3 men left the work and 8 new women joined then, in how many more days will the work be completed?
- (A) 25 Days (B) 15 Days
(C) 10 Days (D) 30 Days
(E) 35 days
- Q3** X men can finish a work in Y days. $0.3X$ women can finish $\frac{1}{5}$ th of the same work in $(Y-10)$ days. If $0.3X$ women can complete $\frac{1}{3}$ rd of the work in 30 days. Find $0.5X$ men can finish $\frac{1}{2}$ nd of the same work in how many days?
- (A) 9 days (B) 7 days
(C) 8 days (D) 10 days
(E) None of these
- Q4** ' A ' men can finish a work in B days. $0.4A$ women can finish $\frac{1}{2}$ of the same work in $(B-6)$ days. If $0.6A$ women can complete $\frac{1}{2}$ of the work in 36 days. Find $0.3A$ men can finish $\frac{1}{3}$ rd of the same work in how many days?
- (A) 7 days (B) 5 days
(C) 4 days (D) 6 days
(E) None of these
- Q5** S and Q together can finish a work in 24 days, Q and T together can do the same work in ' x ' days while S and T together can do that work in $\frac{120}{7}$ days. If all 3 of them can do that work in $\frac{40}{3}$ days. Which of the following is the correct order of time taken by S , Q , and T alone to finish the work?
- A: $(x + 10)$ days
B: $2x$ days
C: $3x$ days
(A) ABC (B) BAC
(C) CAB (D) CBA
(E) BCA
- Q6** A contractor agreed to make M km road in Z days. He employed $0.7Z$ workers for this work. After 60 days, he realized that only $0.25Z$ km of road had been completed. In order to complete remaining work, he hired some new workers such that rest work completed by Y workers on time. If the difference between Z and Y is 20, ($Z > Y$), find the number of new workers employed.
- (A) 80
(B) 60
(C) 40
(D) 20
(E) Can't be determined
- Q7** Time taken by P alone to finish a work is ' $3x$ ' days more than the time taken by Q alone to finish the same. With the help of R , the work can be finished by all the three persons together in ' $2x - 8$ ' days. If ratio of efficiency of P , Q , and R is 2: 6: 1, then find the time taken (in terms of x) by P and R together to finish the work.
- (A) $(x^2 + 5x)$ days
(B) $(x^2 - 6x)$ days
(C) $(x^2 + 6x)$ days
(D) $(x^2 - 4x)$ days
(E) $(x^2 - 5x)$ days
- Q8** A = Time taken by P alone to complete the job is 66.66% more than P and Q together to complete the job. Q is 150% more efficient than that of R . While Q and R together can complete the job in 150 days. Time taken by P alone to



complete the job is $(2M - 20)$ days. Find the value of M .

B = P started the work at 7 am and finish it at 7 pm on same day, while Q started the same work on next day at 7 am and finish it 3 pm. One day P started the work alone and left the work at 2pm, so Q finished the remaining work till 5 pm. Time taken by P alone to finish the work is $(\frac{N}{5} - 6)$ hours. Find the value of N

- (A) $M > N$ (B) $M < N$
 (C) $M + N < 150$ (D) $M = N$
 (E) None of these

- Q9** Time taken by P, Q, and R together to complete the job is 37.5% less than time taken by Q and R together to complete the job, while P and Q together can do the job in Z days, and R alone can complete it in Y days. Share of R is Rs. 8000 out of total share of P, Q, and R together (Rs. 16000). Find the Value of $\frac{Y}{2}$, if P, Q and R together can complete the job in $(Z - K)$ days.

Which of the following is/are definitely true.

I. $\frac{Y}{2} = K$

II. If time taken by P, Q and R together to complete the job is 15 day less than that of P and Q together, then time taken by S to complete the job is 20 days, if Z is half efficient that as that of S.

III. $Z = Y$

- (A) III only
 (B) I and III only
 (C) II and I only
 (D) II and III only
 (E) None of these

- Q10** P, Q, and R together can complete the job in 5Z days. All three together started the work and after K days R left, remaining work complete by P and Q together in Y days. Time taken by Q to complete the job alone is 20% less than that of P. If total amount of Rs. 24M gets by P, Q, and R together to complete the job, then find difference between share of P and R. Combined work of P and Q is 60% of total work.

- (A) 3.2M
 (B) 1.6M
 (C) 2.4M
 (D) 4M
 (E) Can't be determined



Answer Key

Level-1

Q1 (B)
Q2 (A)
Q3 (C)
Q4 (A)
Q5 (A)
Q6 (C)
Q7 (C)
Q8 (B)
Q9 (A)
Q10 (D)

Q11 (D)
Q12 (A)
Q13 (E)
Q14 (A)
Q15 (C)
Q16 (A)
Q17 (A)
Q18 (D)
Q19 (B)
Q20 (C)



Level-2

Q1 (B)
Q2 (C)
Q3 (C)
Q4 (A)
Q5 (C)
Q6 (A)
Q7 (C)
Q8 (E)
Q9 (B)
Q10 (D)

Q11 (A)
Q12 (A)
Q13 (D)
Q14 (D)
Q15 (E)
Q16 (B)
Q17 (B)
Q18 (D)
Q19 (A)
Q20 (B)



Level-3

Q1 (B)

Q2 (C)

Q3 (B)

Q4 (D)

Q5 (C)

Q6 (C)

Q7 (E)

Q8 (D)

Q9 (B)

Q10 (A)



Hints & Solutions

Level-1

Q1 Text Solution:

$$\text{Krishna's one day's work} = \frac{1}{90}$$

$$\text{Mahesh's one day's work} = \frac{1}{30}$$

$$\text{gautam's one day's work} = \frac{1}{45}$$

Krishna, Mahesh and gautam together can do the work =

$$\frac{1}{90} + \frac{1}{30} + \frac{1}{45} = \frac{1}{90}(1 + 3 + 2) = \frac{6}{90} = \frac{1}{15}$$

So, They will complete the work in 15 days.

Q2 Text Solution:

$$\text{LCM}(2,3)=6$$

Let work to be done be 6 units.

$$\text{Work done by A in 1 day} = \frac{6}{3} = 2 \text{ units}$$

$$\text{Work done by B in 1 day} = \frac{6}{2} = 3 \text{ units}$$

$$\text{Time taken by them to complete the work} = \frac{6}{2+3} = 1.2 \text{ days}$$

Q3 Text Solution:

$$\text{LCM}(4,3,2) = 12 \text{ units}$$

Let total work to be done be 12 units.

Work done by ;

$$\text{A in a day} = \frac{12}{4} = 3 \text{ units} \text{--- (1)}$$

$$\text{B+C in a day} = \frac{12}{3} = 4 \text{ units} \text{--- (2)}$$

$$\text{A+C in a day} = \frac{12}{2} = 6 \text{ units} \text{--- (3)}$$

Putting (1) in (3)

$$3 + C = 6$$

$$C = 3 \text{ units}$$

Putting C in (2);

$$3 + B = 4$$

$$B = 1 \text{ units}$$

$$\text{Time taken by B} = \frac{12}{1} = 12 \text{ days}$$

Q4 Text Solution:

$$\text{LCM}(6,4\frac{4}{5},4) = 24 \text{ units}$$

Let total work to be done be 24 units.

Work done by ;

$$\text{A in a day} = \frac{24}{6} = 4 \text{ units} \text{--- (1)}$$

$$\text{B+C in a day} = \frac{24 \times 5}{24} = 5 \text{ units} \text{--- (2)}$$

$$\text{A+C in a day} = \frac{24}{4} = 6 \text{ units} \text{--- (3)}$$

Putting (1) in (3);

$$4 + C = 6$$

$$C = 2 \text{ units}$$

Putting C in (2);

$$2 + B = 5$$

$$B = 3 \text{ units}$$

$$\text{Time taken by B to complete the work} = \frac{24}{3} = 8 \text{ days}$$

Q5 Text Solution:

Given A can complete the work in 15 days ,while B can complete the work in 20 days .

The total work is 60 units . [We should always take the LCM of time taken by each workers as Total work to ease the calculation]

Now calculate the efficiencies of A and B .

$$\text{We know, Efficiency} = \frac{\text{Total work}}{\text{Total time taken to complete it}}$$

$$\text{Efficiency of A} = \frac{60}{15} = 4 \text{ unit /day}$$

$$\text{Efficiency of B} = \frac{60}{20} = 3 \text{ unit /day}$$

And if they work together , resultant efficiency = (4+3)=7 units/ day

Given ,they both work together for 5 days .

So the total work done will be $5 \times 7 = 35$ unit

$$\text{So , in fraction we can say the work done} = \frac{35}{60} = \frac{7}{12}$$

Q6 Text Solution:

$$\text{Laksmi's one day's work} = \frac{1}{6}$$

$$\text{Laksmi's and Taapsee's one day's work} = \frac{1}{4}$$

$$\text{Taapsee's one day's work} = \frac{1}{4} - \frac{1}{6} = \frac{1}{12}$$

Taapsee can do it alone in 12 days.

Q7 Text Solution:

$$\frac{1}{P} + \frac{1}{Q} = \frac{1}{30}$$

$$\Rightarrow \frac{1}{90} + \frac{1}{Q} = \frac{1}{30}$$

$$\Rightarrow \frac{1}{Q} = \frac{1}{30} - \frac{1}{90}$$

$$\Rightarrow \frac{1}{Q} = \frac{2}{90} = \frac{1}{45}$$

$$\Rightarrow Q = 45 \text{ days}$$

Option '45 days' is the correct answer.

Q8 Text Solution:



Luv and Kush together can complete the task in 3 days.

So, in one day, they will complete $\frac{1}{3}$ part of the task.

Therefore, (Luv + Kush)'s one day work will be = $\frac{1}{3}$

Similarly, Luv's one day work = $\frac{1}{5}$

Therefore, Kush's one day work = $\frac{1}{3} - \frac{1}{5} = \frac{2}{15}$

In one day Kush completes the $\frac{2}{15}$ part of the work so he will complete the entire work in $\frac{15}{2} = 7.5$ days.

Q9 Text Solution:

Let efficiency of 1 man be 1 unit.

Total work to be done = $7 \times 12 = 84 \text{ units}$

Work done in 5 days by 7 men
= $7 \times 7 = 49 \text{ units}$

Remaining work = $84 - 49 = 35 \text{ units}$

After 2 men left,

Time taken by 5 men to do the remaining work
= $\frac{35}{5} = 7 \text{ days}$

Q10 Text Solution:

Let work done by women in 1 day be 1 unit.

Total work to be done = $18 \times 52 \text{ units}$

Let x be women required.

As per question;

$$\frac{1}{2} \times 18 \times 52 = (x)36$$

$$\Rightarrow x = 13$$

Option d

Q11 Text Solution:

LCM(30,50) = 150 (Total work)

Sita's one day's work = 5

Sita's 3 day's work = 15

Work left = $150 - 15 = 135$

Gita's one day's work = 3

Gita's can do work in = $\frac{135}{3} = 45 \text{ days}$

So total days = $45 + 3 = 48 \text{ days}$

Q12 Text Solution:

LCM(30,40,24) = 120

Let total work to be done be 120 units.

Work done by P+Q in 1 day = $\frac{120}{30} = 4 \text{ units}$

Work done by Q+R in 1 day = $\frac{120}{40} = 3 \text{ units}$

Work done by P+R in 1 day = $\frac{120}{24} = 5 \text{ units}$

So; work done by (P+Q+R) in 1 days
= $\frac{(4+3+5)}{2} = 6 \text{ units}$

So; work done by R in 1 day
= $6 - 4 = 2 \text{ units}$

Similarly for P = 3 units & Q = 1 units

Time take by P = $\frac{120}{3} = 40 \text{ days}$

Similarly; Q = 120 days & R = 60 days

Q13 Text Solution:

As we know that ;

$$M_1 \times D_1 \times H_1 = M_2 \times D_2 \times H_2$$

17men \times 18 days \times 6 hrs = x men \times 34days \times 2 Hrs

$$x = 27 \text{ men}$$

Q14 Text Solution:

Total work to be done
= $16 \times 24 \times 6 = 2304 \text{ units}$

Since, work done remains same. Therefore;

Number of hours requires = $\frac{2304}{32 \times 12} = 6 \text{ hours}$

Q15 Text Solution:

Let efficiency of every man be 1 unit.

Total work done by 15 men in x days
= $15x \text{ units}$

Now; when 5 extra men joined

$$15x = 20 \times (x - 10)$$

$$\Rightarrow 15x = 20x - 200$$

$$\Rightarrow 5x = 200$$

$$\Rightarrow x = 40$$

Q16 Text Solution:

LCM (10,15,30) = 60

Let work to be done be 60 units

Work done by A+B in 1 day = $\frac{60}{10} = 6 \text{ units}$

Work done by B+C in 1 day = $\frac{60}{15} = 4 \text{ units}$

Work done by A+C in 1 day = $\frac{60}{30} = 2 \text{ units}$

Work done by A+B+C in 1 day
= $\frac{10}{2} = 5 \text{ units}$

Time taken by all of three of them
= $\frac{60}{6} = 10 \text{ days}$



Q17 Text Solution:

$$\text{LCM}(30,60)=60$$

Let work done be 60 units.

$$\text{Work done by A in 1 day} = \frac{60}{30} = 2 \text{ units}$$

$$\text{Work done by B in 1 day} = \frac{60}{60} = 1 \text{ unit}$$

Let work done by C in 1 day be x units.

As per question;

$$10(2 + 1 + x) = 60$$

$$\Rightarrow x = 3 \text{ units}$$

Efficiency ratio of A:B:C = 2 : 1 : 3

$$\text{C's share} = \frac{3}{6} \times 600 = \text{Rs } 300$$

Q18 Text Solution:

Total work done by 13 men

$$= 13 \times 8 \times 18 = 1872 \text{ units}$$

As, work done will be the same.

Therefore,

$$\text{Hours required} = \frac{1872}{(16 \times 26)} = 4.5 \text{ hours}$$

Q19 Text Solution:

$$\text{Total work} = 12 \times 5 \times 15 = 900 \text{ units}$$

$$\text{Now, total women} = 12 + 13 = 25$$

$$\text{Time taken} = \frac{900}{25 \times 4} = 9 \text{ days}$$

Option b

Q20 Text Solution:

let total work be 1500 units

$$\text{Efficiency of 1 man} = \frac{1500}{15 \times 20} = 5 \text{ units/day}$$

$$\text{Efficiency of 1 women} = \frac{1500}{10 \times 25} = 6 \text{ units/day}$$

$$\text{Required time} = \frac{1500}{6 \times 5 + 5 \times 6} = 25 \text{ days .}$$



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Level-2

Q1 Text Solution:

Let the efficiency in first case be 5 unit

Then the efficiency in second case = 4 unit (20% less)

$$\frac{m1 \times d1 \times e1}{1} = \frac{m2 \times d2 \times e2}{2}$$

$$\Rightarrow \frac{15 \times 15 \times 5}{1} = \frac{25 \times d2 \times 4}{2}$$

$$\Rightarrow d2 = 22\frac{1}{2} \text{ days}$$

Q2 Text Solution:

One day's work for 16 men = $\frac{1}{48}$

\therefore 1 man's work = $\frac{1}{768}$

Similarly, 1 woman's work = $\frac{1}{1536}$

According to the question:

Boy's work for 1 day = $\frac{1}{768 \times 2} = \frac{1}{1536}$

According to the question;

(25 men, 8 women and 16 boys)'s work for 1 day

$$= \frac{25}{768} + \frac{8}{1536} + \frac{16}{1536}$$

$$\Rightarrow \frac{25}{768} + \frac{1}{192} + \frac{1}{96} = \frac{37}{768}$$

Number of days they will take = $\frac{768}{37} = 20\frac{28}{37}$ days

Q3 Text Solution:

If A can do piece of work in 'n' days and B can do piece of work in 'm' days, then both together can complete the work in:

$$= \frac{m \times n}{m+n}$$

No. of days they work together is:

$$= \frac{24 \times 8}{24+8}$$

= 6 days

So, Ajay and Sunil can complete the work in 6 days.

Q4 Text Solution:

Let work done by male and female labours be m and w units respectively.

$$10m \times 36 = 20w \times 24$$

$$360m = 480w$$

$$m = \frac{4w}{3}$$

Let efficiency of women = w = 3 units.

Then, efficiency of men
= m = $4/3 \times 3 = 4$ units

Total work to be done

$$= 10m \times 36 = 360m = 1440 \text{ units}$$

Time taken by all of them = $\frac{1440}{[10(4)+20(3)]}$

$$= \frac{1440}{100} = \frac{72}{5} \text{ days}$$

Q5 Text Solution:

Let work be done by men in 1 day be 1 unit.

Total work = $18 \times 9 = 162$

Work done by 18 men in 4 days

$$= 18 \times 4 = 72 \text{ units}$$

Let days taken by them be x.

$$\text{Work left} = 162 - 72 = 90$$

$$\Rightarrow 20 \times x = 90$$

$$\Rightarrow x = 4.5 \text{ days}$$

Q6 Text Solution:

Aditi and Nimisha together can finish a job in 24 hours.

One hour work of Aditi and Nimisha = $\frac{1}{24}$

Nimisha and Rajni together can finish the same job in 20 hours.

One hour work of Nimisha and Rajni = $\frac{1}{20}$

Rajni alone can finish the whole job in 60 hours.

One hour work of Rajni = $\frac{1}{60}$

Let Aditi, Nimisha and Rajni can finish the job in Aditi, Nimisha and Rajni respectively.

Let,

the job done by Aditi = P

the job done by Nimisha = Q

the job done by Rajni = R

Then,

$$\left(\frac{1}{Q}\right) + \left(\frac{1}{R}\right) = \frac{1}{20}$$

$$\left(\frac{1}{Q}\right) + \left(\frac{1}{60}\right) = \frac{1}{20}$$

$$\frac{1}{Q} = \frac{3-1}{60}$$

Q = 30 hours

Now

$$\text{अब, } \left(\frac{1}{P}\right) + \left(\frac{1}{Q}\right) = \frac{1}{24}$$

$$\left(\frac{1}{P}\right) + \left(\frac{1}{30}\right) = \frac{1}{24}$$

$$\frac{1}{P} = \frac{5-4}{120}$$

P = 120 hours



Therefore, part of job done by Aditi in 40 hours
 $= \frac{40}{120} = \frac{1}{3}$ part

Q7 Text Solution:

Let total amount of work is 140 units (LCM of 20 and 28)

Amount of work completed by Ajay and Bunty together in one day $= \frac{140}{28} = 5$ units

Amount of work completed by Bunty and Chandani together in one day $= \frac{140}{20} = 7$ units

Amount of work completed by Ajay and Bunty together in 6 days $= 6 \times 5 = 30$ units

Amount of work completed by Bunty and Chandani together in 10 days $= 10 \times 7 = 70$ units

Remaining work $(140 - 30 - 70 = 40)$ units is completed by Chandani in 10 days

So, efficiency of Chandani $= \frac{40}{10} = 4$ units per day

Efficiency of Bunty $= 7 - 4 = 3$ units per day

Efficiency of Ajay $= 5 - 3 = 2$ units per day

Time taken by Ajay to complete the whole work $= \frac{140}{2} = 70$ days

Q8 Text Solution:

LCM(20,30) = 60

Let total work be done by 60 units.

Work by A in 1 day $= \frac{60}{20} = 3$ units

Work done by B in 1 day $= \frac{60}{30} = 2$ units

Part of work done by A $= 3 \times \frac{5}{60} = \frac{1}{4}$

Part of work done by B $= 2 \times \frac{5}{60} = \frac{1}{6}$

Part of work done by C $= 1 - \frac{1}{4} - \frac{1}{6} = \frac{7}{12}$

Ratio of share of A:B:C $= \frac{1}{4} : \frac{1}{6} : \frac{7}{12} = 3 : 2 : 7$

B's share, $x = \frac{2}{12} \times 1500 = \text{Rs } 250$

E's share $= \text{Rs } 250 \times 2 = \text{Rs } 500$

Q9 Text Solution:

Number of articles manufactured by 15 men working 8 hours a day in 25 days $= 18000 \times \frac{25}{40} = 11,250$

Remaining articles to be manufactured $= 18000 - 11250 = 6750$ articles

Let the efficiency of each worker be 'E' articles/day

So, $15 \times 8 \times 40 \times E = 18000$

Or, $E = 3.75$

Let the number of days taken by 10 workers to make 6750 articles be 'd' days

So, $\{6750 \div (3.75 \times 10 \times 8)\} = d$

Or, $d = 22.5$

So, additional days are required to finish the work $= 22.5 - 15 = 7.5$ days

Hence, option b.

Q10 Text Solution:

Let the efficiency of B = 'x' units/day

Efficiency of A $= (144 \div 24) = 6$ units/day

According to the question:

$6 \times 10 + (6 + x) \times 6 = 144$

Or, $60 + 36 + 6x = 144$

Or, $6x = 144 - 96$

Or, $6x = 48$

Or, $x = 8$

Number of days taken by 'B' to complete the work alone $= (144 \div 8) = 18$ days

Q11 Text Solution:

Let work done by men and women in 1 day be m and w units respectively.

As per ques;

Total work to be done $= 15m \times 12 = 180m$ /units

Since, total work to be done will be equal by men and women. Therefore;

$180m = 30w \times 12$

$\Rightarrow m : w = 2 : 1$

Now,

Let days taken by 5 men be k days.

Let work done by man $m = 2$ units and women $w = 1$ unit in 1 day
 Total work to be done $= 180m = 360$ units

As per question;

$10(5m + 6w) + 5m(k) = 360$

$\Rightarrow 10(16) + 10k = 360$

$\Rightarrow 10k = 200$

$\Rightarrow k = 20$ days

Q12 Text Solution:

Let the efficiency of a man $= 8y$ units/day



Then, the total work to be done in building the bridge = $8y \times 7 \times 45 = 2520y$ units

Efficiency of a woman = $8y \times 0.875 = 7y$ units/day

Combined efficiency of 5 women and 2 men = $5 \times 7y + 2 \times 8y = 51y$ units/day

Work done by 5 women and 2 men in 35 days = $51y \times 35 = 1785y$ units

Remaining work = $2520y - 1785y = 735y$ units

So, number of days taken by 1 man and 1 woman together to complete the remaining work = $735 \div (8 + 7) = 49$ days

So, total work done by women = $35y \times 35 + 7y \times 49 = 1225y + 343y = 1568y$ units

Total work done by men = $2520y - 1568y = 952y$ units

So, required ratio = $952y : 1568y = 17:28$

Hence, option B.

Q13 Text Solution:

Sahivani worked alone for 15 days (because for the first 2 days he worked with Vaishali), Ananya and Vaishali worked together for 4 days and Vaishali and Sahivani together worked for 2 days.

So total work done by Ananya and Vaishali in 4 days = $4 \times \frac{1}{12} = \frac{1}{3}$

So total work done by Vaishali and Sahivani in 2 days = $2 \times \frac{1}{18} = \frac{1}{9}$

So the total work done by Sahivani in 15 days = $1 - \frac{1}{3} - \frac{1}{9} = \frac{5}{9}$

So work done by Sahivani in 1 day = $\frac{\frac{5}{9}}{15} = \frac{1}{27}$

So Sahivani can do the whole work in 27 days.

It is given that Vaishali and Sahivani together can do the work in 18 days

Hence work done by Vaishali in one day = $\frac{1}{18} - \frac{1}{27} = \frac{1}{54}$

Means Vaishali can complete in 54 days.

Similarly Ananya and Vaishali can finish the work in 12 days.

So work done by Ananya in one day = $\frac{1}{12} - \frac{1}{54} = \frac{7}{108}$

Hence Ananya can complete the work in $\frac{108}{7}$ days

Q14 Text Solution:

Let the efficiency of Aman and Atul be 'x' units per day and 'y' units per day, respectively.

$$\frac{1}{x} + \frac{1}{y} = \frac{1}{15}$$

$$\text{Or, } (x + y) = \frac{xy}{15} \dots\dots\dots (I)$$

$$\text{Also, } \frac{3}{4x} + \frac{4}{3y} = \frac{1}{15}$$

$$\text{Or, } 9y + 16x = 12 \times \frac{xy}{15} \dots\dots\dots (II)$$

On combining equation (I) and (II), we have;

$$9y + 16x = 12 \times (x + y)$$

$$\text{Or, } 9y + 16x = 12x + 12y$$

$$\text{Or, } 4x = 3y$$

$$\text{So, } \frac{x}{y} = \frac{3}{4}$$

Since, ratio of efficiencies of Aman to that of Atul is 3:4. So, the ratio of time taken by Aman and Atul to do a particular work will be 4:3, respectively.

So, required time = $12 \times \frac{4}{3} = 16$ days

Q15 Text Solution:

Since, ratio of A's efficiency to C's efficiency is 6:1.

So, let the time taken by A alone and C alone to complete the work is 'x' minutes and '6x' minutes.

From the question:

$$\frac{1}{x} + \frac{1}{B} = \frac{1}{t} \dots\dots\dots (1)$$

And,

$$\frac{1}{B} + \frac{1}{6x} = \frac{1}{3t} \dots\dots\dots (2)$$

From equations (1) and (2):

$$\frac{1}{x} - \frac{1}{6x} = \frac{1}{t} - \frac{1}{3t}$$

$$\frac{5}{6x} = \frac{2}{3t}$$

$$x = \frac{5t}{4}$$

So, the time taken by A alone to complete the work = $\frac{5t}{4}$ minutes

Q16 Text Solution:

Time taken by 'A' and 'B' to finish the full work together = 7.5 days

Let the total work be 30x units.



So, combined efficiency of 'A' and 'B' = $(30x/7.5)$
 $= 4x$ units/day

So, work done by 'A' and 'B' together in 4 days =
 $4x \times 4 = 16x$ units/day

So, remaining work = $30x - 16x = 14x$ units

So, the combined efficiency of 'B' and 'C' = $14x \div 4 = 3.5x$ units/day

Let 'A' and 'B' efficiencies be 'm' units/day and 'n' units/day.

Since ratio of time taken between 'A' and 'C' is 4:5, ratio of efficiency will be 5:4.

So, efficiency of 'C' = $0.8 \times m = 0.8m$

ATQ;

$$m + n = 4x \dots (I)$$

$$0.8m + n = 3.5x \dots (II)$$

On subtracting equation (II) from equation (I), we have;

$$0.2m = 0.5x$$

$$\text{So, } m = 2.5x$$

So, time taken by 'C' to finish the work alone =
 $30x \div (2.5x \times 0.8) = 15$ days

Hence, option b.

Q17 Text Solution:

Given,

10 Men can do a piece of work in 12 days

$\Rightarrow 10$ men = 12 days

$$\text{So, } 4 \text{ men} = \frac{12 \times 10}{4}$$

$\Rightarrow 4$ men = 30 days

And, 12 Women can do 40% of the same work in 8 days (given)

$\Rightarrow 12$ women = 40% in 8 days

$\Rightarrow 12$ women = 80% in 16 days

$\Rightarrow 12$ women = 100% in 20 days

So, 12 women = 20 days

$$\text{Thus, } 6 \text{ women} = \frac{20 \times 12}{6}$$

$\Rightarrow 6$ women = 40 days

And, 6 Children can do 75% of the same work in 12 days

$\Rightarrow 6$ children = 75% in 12 days

$\Rightarrow 6$ children = 25% in 4 days

$\Rightarrow 6$ children = 100% in 16 days

$\Rightarrow 6$ children = 16 days

$$\text{So, } 2 \text{ children} = \frac{16 \times 6}{2}$$

$\Rightarrow 2$ children = 48 days

Total work = LCM of 30, 40 and 48 = 240

$$4 \text{ Men's one day's work} = \frac{240}{30}$$

= 8 units

$$6 \text{ Women's one day's work} = \frac{240}{40}$$

= 6 units

$$2 \text{ Child's one day's work} = \frac{240}{48}$$

= 5 units

Total work of 3 days = $8 + 6 + 5 = 19$ units

Total work of 36 days = 228

Now,

it's 4 Men's terms, they will complete $228 + 8$

= 236 units

Then,

it's 6 women's terms

6 women will be the last to complete the work.

Q18 Text Solution:

Let work done by men and women in 1 day be m and w units respectively.

As per ques;

Total work to be done = $6m \times 20 = 120m$ units

Since, total work to be done will be equal by men and women. Therefore;

$$120m = 12w \times 15$$

$$\Rightarrow m : w = 3 : 2$$

Now,

Let work done by man = m = 3 units and women = w = 2 units in 1 day

Total work to be done = $120m = 360$ units

As per the question;

$$10[(x-1)3 + (x+2)2] = 360$$

$$\Rightarrow 3x - 3 + 2x + 4 = 36$$

$$\Rightarrow 5x = 35$$

$$\Rightarrow x = 7$$

Q19 Text Solution:

$$\frac{M_1 \times D_1 \times H_1}{W_1} = \frac{M_2 \times D_2 \times H_2}{W_2}$$

$$\frac{(x+2) \times 4 \times 9}{3/10} = \frac{(x+4) \times 3 \times 20}{7/10}$$

$$21x + 42 = 15x + 60$$

$$x = 3$$

Q20 Text Solution:

Time taken by (n+1) to complete 100% of work

$$= (n+1) \times 9 \times 4 \times \frac{10}{3}$$



Time taken by $(n+3)$ to complete 100% of work

$$= (n+3) \times 6 \times 10 \times \frac{10}{7}$$

Since work done will be equal.

$$\Rightarrow (n+1) \times 9 \times 4 \times \frac{10}{3} = (n+3) \times 6$$

$$\times 10 \times \frac{10}{7}$$

$$\Rightarrow 12(n+1) = \frac{60}{7}(n+3)$$

$$\Rightarrow 84n + 84 = 60n + 180$$

$$\Rightarrow 24n = 96$$

$$\Rightarrow n = 4$$



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Level-3

Q1 Text Solution:

Total time taken by $(a+3)$ men to complete 100

% of work

$$= \frac{[(a+3) \times 12 \times 3]}{0.3} \text{ --- (1)}$$

Total time taken by $(a+5)$ men to complete 100

% of work

$$= \frac{[(a+5) \times 12 \times 5]}{0.7} \text{ --- (2)}$$

From (1) and (2)

$$\frac{[(a+3) \times 12 \times 3]}{0.3} = \frac{[(a+5) \times 12 \times 5]}{0.7}$$

$$\Rightarrow 7a + 21 = 5a + 25$$

$$\Rightarrow 2a = 4$$

$$\Rightarrow a = 2$$

Q2 Text Solution:

Let work done by women be 2 units respectively.

Work done by men in 1 day = 4 units

Total work to be done

$$= (14(4) + 12(2))8 = 640 \text{ units}$$

Work done by 8 men and 4 women in 5 days

$$= 5[8(4) + 4(2)] = 200 \text{ units}$$

Work left = $640 - 200 = 440 \text{ units}$

Men left = $8 - 3 = 5$

Time taken by 5 men and 12 women

$$= \frac{440}{\frac{5(4) + 12(2)}{44}} = \frac{440}{44} = 10 \text{ days}$$

Q3 Text Solution:

Ans: 7 days

$0.3X$ women can complete the whole work in =

$5(Y - 10)$ days

$0.3X$ women complete the same work in = $30 \times$

$3 = 90$ days

So, $0.3X \times 5(Y - 10) = 0.3X \times 90$

$Y - 10 = 18$

$Y = 28$ days

If A men complete the work in 28 days, then

$0.5X$ men complete $1/2$ nd work in = $28 \times \frac{1}{2} \times \frac{1}{2} =$

7 days

$$= 28 \times \frac{1}{2} \times \frac{1}{2} = 7 \text{ days}$$

Q4 Text Solution:

Ans: 50 days

$0.4A$ women can complete the whole work in =

$2(B - 6)$ days

$0.6A$ women complete the same work in = $36 \times$

$2 = 72$ days

So, $0.4A \times 2(B - 6) = 0.6A \times 72$

$B - 6 = 54$

$B = 60$ days

If A men complete the work in 60 days, then

$0.3A$ men complete $1/3$ rd work in = $60 \times \frac{3}{10} \times \frac{1}{3} =$

6 days

Q5 Text Solution:

Let time taken by S, Q, and T together to finish the work is 's', 'q', and 't' respectively.

According to the question:

$$\frac{1}{s} + \frac{1}{q} = \frac{1}{24} \text{ (1)}$$

$$\frac{1}{q} + \frac{1}{t} = \frac{1}{x} \text{ (2)}$$

$$\frac{1}{s} + \frac{1}{t} = \frac{7}{120} \text{ (3)}$$

$$\frac{1}{s} + \frac{1}{q} + \frac{1}{t} = \frac{3}{40} \text{ (4)}$$

From (1) and (4):

$$\frac{1}{24} + \frac{1}{t} = \frac{3}{40}$$

$$\frac{1}{t} = \frac{3}{40} - \frac{1}{24} = \frac{9-5}{120}$$

$t = 30$ days

From (3) and (4):

$$\frac{7}{120} + \frac{1}{q} = \frac{3}{40}$$

$$\frac{1}{q} = \frac{3}{40} - \frac{7}{120} = \frac{9-7}{120}$$

$q = 60$ days

From equation (2):

$$\frac{1}{60} + \frac{1}{30} = \frac{1}{x}$$

$$\frac{1}{x} = \frac{1}{60} + \frac{1}{30} = \frac{1+2}{60} = \frac{3}{60}$$

$x = 20$

From equation (1):

$$\frac{1}{s} + \frac{1}{60} = \frac{1}{24}$$

$$\frac{1}{s} = \frac{1}{24} - \frac{1}{60} = \frac{5-2}{120} = \frac{3}{120}$$

$s = 40$

Time taken by S alone = 40 days = $2x$ days

Time taken by Q alone = 60 days = $3x$ days

Time taken by T alone = 30 = $(x + 10)$ days

Hence, the correct order is CAB.



Q6 Text Solution:

By concept of man days,

$$\frac{0.7Z \times 60}{0.25M} = \frac{(Z-60) \times Y}{0.75M}$$

$$\frac{0.7Z \times 180}{(Z-60)} = Y \dots \dots \dots (1)$$

Also,

$$Z - Y = 20 \dots \dots \dots (2)$$

From both equations, we get

$$Z - \frac{0.7Z \times 180}{(Z-60)} = 20$$

$$Z^2 - 206Z + 1200 = 0$$

Value of $Z = 200$ and 6

Value of $Z = 6$ (not possible)

Value of $Y = 200 - 20 = 180$

New workers = $180 - 0.7 \times Z = 40$

Hence answer is option C

Q7 Text Solution:

Since ratio of efficiency of P, Q, and R is 2: 6: 1

which means ratio of time taken by P, Q, and R

will be $\frac{1}{2} : \frac{1}{6} : \frac{1}{1} = 3:1:6$

Let time taken by P, Q, and R alone to finish the work is '3m', 'm', and '6m' days respectively.

$$3m - m = 3x$$

$$2m = 3x$$

$$6m = 9x \dots \dots \dots (1)$$

According to the question:

$$\frac{1}{3m} + \frac{1}{m} + \frac{1}{6m} = \frac{1}{2x-8}$$

$$\frac{2+6+1}{6m} = \frac{1}{2x-8}$$

$$\frac{9}{9x} = \frac{1}{2x-8}$$

$$x = 2x - 8$$

$$x = 8, m = 12$$

Time taken by P and R together to finish the work =

$$\frac{1}{\frac{1}{3m} + \frac{1}{6m}}$$

$$\frac{1}{\frac{1}{36} + \frac{1}{72}}$$

$$\frac{72}{2+1} = \frac{72}{3}$$

$$= 24 \text{ days}$$

$$= (x^2 - 5x) \text{ days}$$

Q8 Text Solution:

For A

The ratio of time taken of P and (P + Q) = 5:3

The ratio of efficiency of P and (P + Q) = 3:5

So, the ratio of efficiency of P and Q = 3:2

The ratio of efficiency of P and Q = 5:2

So, the ratio of efficiency of P, Q, and R = 15:10:4

Total work units = $(10 + 4) \times 150 = 14 \times 150$

Time taken by P alone = $14 \times \frac{150}{15} = 140$ days

$$(2M - 20) = 140$$

Value of $M = 80$

For B

The time taken by P alone to finish the work is 5 hours more than Q.

After 2 pm, when P continues the task it will take 4 hours for P to complete the remaining work.

But this remaining work completes the Q in 3 hours.

So, the ratio of time taken of P and Q = 5:3

Time taken by P alone to finish the task = $\frac{4}{2} \times 5 = 10$

So,

$$(\frac{N}{5} - 6) = 10$$

Value of $N = 80$

So, $N = M$

Hence, the answer is option D

Q9 Text Solution:

Ratio of time taken of (P + Q + R) and (Q + R) = 5:8

Ratio of efficiency of (P + Q + R) to that of (Q + R) = 8:5

So, efficiency of P = $8 - 5 = 3$ units/day

Share of R out of total share = $\frac{8000}{16000} = \frac{1}{2}$

That means efficiency of R = (P + Q)

Efficiency of R = P + Q = $\frac{8}{2} = 4$ units/day

So, efficiency of Q = $4 - 3 = 1$ unit/day

Time taken by P and Q together to complete the job = Z days

Time taken by P, Q, and R together to complete the job = (Z - K) days

Now,

$$Z = 2 \times (Z - K)$$

Value of $Z = 2K$

So, time taken by P and Q together to complete the job = $2K$ days = time taken by R alone to complete the job = Y.

$$\text{i. } \frac{Y}{2} = K$$



Value of $Z = 2K$

Also, $Y = Z$

So, $\frac{Y}{2} = K$

This statement is true.

II. If time taken by P, Q and R together to complete the job is 15 day less than that of P and Q together, then time taken by S to complete the job is 20 days, if Z is half efficient that as that of S.

Value of $K = 15$

So, $Z = Y = 2 \times 15 = 30$

S is twice efficient as that of R, so time taken by S to complete the job is $= \frac{30}{2} = 15$ days.

This statement is false.

III. $Z = Y$

This statement is true.

So, only I and III are true,

Hence, the answer is option B

Q10 Text Solution:

P and Q together do 60% of total work, so R alone does 40% of total work.

Share of money distribution is same as ratio of amount of work done.

Q and P work for same number of days, so ratio of work done = ratio of their efficiency =

Share of (P + Q) = $60\% \times 24M = 14.4M$

Share of R = $40\% \times 24M = 9.6M$

Ratio of time taken of P and Q = 5:4

Ratio of efficiency of P and Q = 4:5

Share of P = $\frac{4}{9} \times 14.4M = 6.4M$

Required difference = $9.6M - 6.4M = 3.2M$

Hence answer is option A



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