## TIME AND WORK

1. A can do a certain job in 25 days which B alone can do in 20 days. A started the work and was joined by B after 10 days. The number of days taken in completing the work was
(A) $12 \frac{1}{2}$
(B) $14 \frac{2}{9}$
(C) 15
(D) $16 \frac{2}{3}$

Answer: (D) $16 \frac{2}{3}$
$\mathrm{A}=25$ days, $\mathrm{b}=20$ days
If a man finishes total work in ' $n$ ' days. Then one days he does $1 / n$, all sumes take , $1 / n$ then go answer replace $1 / n$.
$A=\frac{1}{25}$ days, $B=\frac{1}{20}$ days
$A+B=\frac{1}{20}+\frac{1}{25} \Rightarrow$ Take L.C.M $\Rightarrow \frac{4+5}{100}=\frac{9}{100}$
Then replace, $=\frac{100}{9}$
First 10 days of A work $=\frac{10}{25}=\frac{2}{5}$ comlete work
As remaining work $=\frac{3}{5}$
Then R.W X total work $=\frac{3}{5} \times \frac{100}{9}=62 / 3$
Complete work $=10+6^{2 / 3}=162 / 3$ days
Ans: 16 2/3days
2. A can finish a work in 18 days and B can do the same work in 15 days. B worked for 10 days and left the job. In how many days A can finish the remaining work
(A) 6 days
(B) 8 days
(C) 5 days
(D) 9 days

Answer: (A) 6 Days.
$A=1 / 18$ days, $B=1 / 15$ days,
B's complete work $=10 / 15=2 / 3$, then remain work $=1 / 3$,

A's remain work $=1 / 3 \times 18=6$ days.
Ans: 6days.
3. A does a work in 10 days and B does the same work in 15 days. In how many days they together will do the same work?
(A) 5 days
(B) 6 days
(C) 8 days
(D) 4 days

Answer: (B) 6 Days
$\mathrm{A}=1 / 10$ days, $\mathrm{B}=1 / 15$ days $\mathrm{A}+\mathrm{B}=$ ?
$A+B==\frac{1}{10}+\frac{1}{15}$, Take $L C M=3+2 / 30$
$\Rightarrow 5 / 30=1 / 6 \quad$ then replace $=\frac{6}{1}$ days.
Ans : 6 days
4. A can do a piece of work in 10 days and B can do the same work in 12 days. How long will they take to finish the work, if both work together?
(A) 6 days
(B) $5 \frac{5}{11}$ days
(C) 7 days
(D) 8 days

Answer: (B) $5 \frac{5}{11}$ days
$\mathrm{A}=1 / 10$ days, $\mathrm{B}=1 / 12$ days $\mathrm{A}+\mathrm{B}=$ ?
$A+B=\frac{1}{10}+\frac{1}{12}=>$ then take $L . C . M=>\frac{6+5}{60}$
$=>\frac{11}{60}=>\frac{60}{11}$ Replace $=5 \frac{5}{11}$ days.
Ans : 5 5/11 Days.
5. A and B together can complete a work in 15 days. B alone can complete the same work in 45 days. Then
(A) A is twice as good workman as B
(B) B is twice as good workman as A
(C) A is thrice as good workman as B
(D) B is thrice as good workman as A

Answer: (A) A is twice as good workman as B.
$\mathrm{A}=$ ? $\quad \mathrm{B}=\frac{1}{45}$ days,$A+B=\frac{1}{15}$ Days
$A+B-B=A$
$\frac{1}{15}-\frac{1}{45}=>$ take $\operatorname{LCM} \frac{3-1}{45}=\frac{2}{45}$

Replaced $=\frac{45}{2}=22.5$ days
Ans: Twise
6. A, B and C can complete a piece of work in 24,6 and 12 days respectively, working together they will complete the same work in
(A) $3 \frac{3}{7}$ days
(B) $4 \frac{2}{7}$ days
(C) $10 \frac{3}{7}$ days
(D) $12 \frac{1}{4}$ days

Answer: (A) $3 \frac{3}{7}$ days
$A=1 / 24$ days, $B=1 / 6$ days, $C=1 / 12$ days $A+B+C=$ ?
Take LCM $=>\frac{1+2+4}{24}=\frac{7}{24}$
Replaced $=24 / 7=33 / 7$ days
Ans: 3 3/7 Days.
7. First pipe can fill a tank in 12 hours. Second pipe can fill the same tank in 6 hours. Third pipe in 4 hours. How long will it take to fill the tank if all the 3pipes are opened simultaneously?
(A) 2 hrs
(B) 3 hrs
(C) 4 hrs
(D) 12 hrs

Answer: (A) 2 hrs.
$\mathrm{P} 1=12$ hours,$=1 / 12$ hour, $\mathrm{P} 3=1 / 4$ hours
$\mathrm{P} 1+\mathrm{P} 2+\mathrm{P} 3=$ ?
Take LCM $=>\frac{1+2+3}{12}=\frac{6}{12}=\frac{1}{2}$
Replaced by $=2 / 1$ hpurs
Ans: 2 hours
8. Seven men working 9 hours a day can do a piece of work in 30 days. In how many days will 10 men working for 7 hours a day do the same work?
(A) 28 days
(B) 30 days
(C) 32 days
(D) 27 days

Answer: (D) 27 Days.
$\frac{\mathrm{M} 1+\mathrm{D} 1+\mathrm{H} 1}{\mathrm{~W} 1}=\frac{\mathrm{M} 2+\mathrm{D} 2+\mathrm{H} 2}{\mathrm{~W} 2}=$ Formula
$\mathrm{M}=\operatorname{man} \mathrm{H}=$ hour
$D=$ days $W=$ work
$\frac{7 \times 30 \times 9}{1}=\frac{10 \times D 2 \times 7}{1}$
D2= 27 Days.
9. A can do a certain job in 12 days. B is $60 \%$ more efficient than A. How many days does B alone take to do the same job?
(A) 6 days
(B) 7.5 days
(C) 8 days
(D) 8.5 days

Answer: (B) 7.5 days
$\mathrm{A}=12$ days, $\mathrm{B}=60 \%$ more than A ,
Take A = 100\% , b=160\%
$100=>12$
160 => ?
$100 \times 12=160 \times x \quad B=7.5$ days
Ans: 7.5 days.
10. 140 men can finish a piece of work in 11 days. How many days will 110 men take to finish the same work?
(A) 15 days
(B) 12 days
(C) 13 days
(D) 14 days

Answer: (D) 14 days
$M_{1}=140, D_{1}=11$ days , $D_{2}=$ ?
$140 \times 11=110 \times D_{2}$
$D_{2}=14$ days.
Ans: 14 days
11. A tank can be filled by an inlet tap in 10 hours and it can be emptied by an outlet pipe in 12 hours. If both the inlet tap and outlet pipe are opened, find the time taken to fill the tank
(A) 120 hrs
(B) 60 hrs
(C) 30 hrs
(D) 15 hrs

Answer: (B) 60 hrs
$\mathrm{A}=10$ hour $=1 / 10$ hour, $\mathrm{B}=12$ hour $=1 / 12$ hour [ Empty so take "-"]

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\mathrm{A}-\mathrm{B}=\text { ? Take } \operatorname{LCM} \frac{6-5}{60}=\frac{1}{60}
$$

Replaced $=60 / 1$ hour

Ans : 60 hour
12. Two taps can fill a tank in 30 minutes and 40 minutes. Another tap can empty it in 24 minutes. If the tank is empty and all the three taps are kept open, in how much time the tank will be filled?
(A) $1 / 2$ hour
(B) 2 hours
(C) $1 / 2$ hours
(D) 1 hour

Answer: (D) 1 hour
$A=1 / 30$ minute, $B=1 / 40$ minute,$C=1 / 24$ minute,
[ C is empty, take c is ' - ']

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\begin{aligned}
& A+B-C=? \text { take } L C M=>\frac{4+3-5}{120} \\
& =>\frac{2}{120}=\frac{1}{60}=\text { Replaced by }=\frac{60}{1} \text { minute }
\end{aligned}
$$

Ans: 1 hour
13. A can complete $1 / 4$ part of a work in 20 days. A can complete remaining $3 / 4$ part of the work in
(A) 10
(B) 20
(C) 30
(D) 60

Answer: (D) 60
A $=1 / 4$ past $=1 / 20$ days so $=>3 / 4$ past $=$ ?

$$
\begin{gathered}
\frac{1}{4} \times \frac{1}{20}=\frac{3}{4} \times \frac{1}{D 2} \\
=>\frac{1}{60}=\frac{1}{D 2}
\end{gathered}
$$

D2 $=60$ days
Ans : 60 days.
14. A can do certain job in 12 days. B is $60 \%$ more efficient than A. How many days does B alone take to do the same job?
(A) 8.5 days
(B) 6.5 days
(C) 9.5 days
(D) 7.5 days

Answer: (D) 7.5 days
$A=12$ days, $B=60 \%$ more than $A$,
Take , A = 100 \% B = 160 \% ,
100 => 12
$160=>$ ?
=> $100 \times 12=160 \times \mathrm{X}$
$B=7.5$ days
Ans: 7.5 days.
15. A and B can do a piece of work in 18 days. $B$ and $C$ in 24 days; $C$ and $A$ in 36 days. In how many days can they do it all working together?
(A) 16
(B) 12
(C) 13
(D) 26

Answer: (A) 16
$A+B=1 / 18$ days,
$B+C=1 / 24$ days,
$C+A=1 / 36$ days
$\Rightarrow 2 \mathrm{~A}+2 \mathrm{~B}+2 \mathrm{C}=\frac{1}{18}+\frac{1}{24}+\frac{1}{36}$
$\Rightarrow 2(A+B+C)=\frac{3+4+2}{72}=\frac{9}{72}$
$\Rightarrow 2(\mathrm{~A}+\mathrm{B}+\mathrm{C})=\frac{9}{47}=>A+B+C=\frac{9}{72 \times 2}$
$A+B+C=\frac{9}{144}=\frac{1}{16}$
Replaced by $=16$ days
Ans : 16 days.
16. If 24 persons can do 180 jobs in 15 days, then find the number of persons required to do 240 jobs in 12 days.
(A) 38
(B) 40
(C) 42
(D) 44

Answer: (B) 40
$\mathrm{M}_{1}=24, \mathrm{~N}_{1}=180, \mathrm{D}_{1}=15, \mathrm{M}_{2}=$ ? $, \mathrm{W}_{2}=240, \mathrm{D}_{2}=12$
$\frac{24 \times 15}{180}=\frac{M \times 12}{240}$
$\mathrm{M}_{2}=40$
Ans : 40 person
17. If A and B together complete a work in 20 days. If A alone completes the work in 24 days, then B alone completes the work in
(A) 14 days
(B) 44 days
(C) 120 days
(D) 48 days

Answer: (C) 120 days
$A+B=1 / 20$ days, $A=1 / 24$ days $B=$ ?
$A+B-A=B$
$\Rightarrow \frac{1}{20}-\frac{1}{24}=>$ take $L C M=>\frac{6-5}{120}=\frac{1}{120}$
Replaced by =120/ 1days.
Ans : 120 days.
18. A tap can fill a tank in 15 minutes. Another tap can empty it in 20 minutes. Initially the tank is empty, if both the taps start functioning at the same time, when will the tank become full?
(A) 1 hour
(B) 3 hours
(C) 2 hours
(D) 4 hours

Answer: (A) 1 hour
$A=1 / 15 \mathrm{~min}, B=1 / 20 \min \left[B\right.$ is empty so $\left.{ }^{\prime}-{ }^{\prime}\right]$
$\mathrm{A}-\mathrm{B}=\frac{1}{15}-\frac{1}{20}$ take LCM
$\frac{4-3}{60}=>\frac{1}{60}$ replaced by $\frac{60}{1} \mathrm{~min}$
Ans: 1 hour
19. Three men A, B and C can complete a job in 8,12 and 16 days respectively. A and C work together for 2 days then C leaves and B joins. In how many days can A and $B$ finish the work?
(A) 1
(B) 3
(C) 4
(D) 5

Answer: (B) 3
$A=1 / 8$ days,$B=1 / 12$ days,$C=1 / 16$ days
A'S C. $\mathrm{W}=\frac{2}{8}=\frac{1}{4} \quad C^{\prime} S$ S. $W=\frac{2}{16}=\frac{1}{8}$
$A+C=\frac{1}{4}+\frac{1}{8} \quad L C M=>\frac{2+1}{8}=\frac{3}{8}$
$\mathrm{A}^{\prime} \mathrm{C}$ is $\quad \mathrm{R} . \mathrm{W}=5 / 8 \quad A, B=\frac{D 1 * D 2}{D 1+D 2}$
R.W $=\frac{5}{8} X \frac{8 X 12}{8+12}=>\frac{5}{1} X \frac{12}{20}=3$ days .

Ans: 3 days.
20. A man and woman are engaged in a work. A man can do a piece of work in 4 days and the woman can do in 12 days. Find how many days will they take to finish it together?
(A) 6 days
(B) 5 days
(C) 4 days
(D) 3 days

Answer: (D) 3 days
men $=1 / 4 /$ days women $=1 / 12$ days
$\mathrm{M}+\mathrm{W}=\frac{1}{4}+\frac{1}{12}=>$ take $L C M$
$=>\frac{3+1}{12}=\frac{4}{12}$ replaced by $\frac{3}{1}$ days
Ans : 3 days
21. A can do a piece of work in 20 days and B can do it in 25 days. Both of them finished the work and earned Rs. 3,600. Then A's share is
(A) Rs. 1,600
(B) Rs. 2,000
(C) Rs. 3,000
(D) Rs. 3,100

Answer: (B) Rs. 2,000
$A=1 / 20$ days $B=1 / 25$ days, $A+B=$ ?
Take LCM $=100, A=\frac{100}{20}=5 \mathrm{part}$
$B=\frac{100}{26}=4$ parts
Totally 9 parts,
9 parts $=3600$ Rs,
$\Rightarrow 93600$
$\Rightarrow 5$ ? $\quad \mathrm{A}=2000 \mathrm{Rs}$
Ans : 2000 Rs.
22. If 22 men can build a wall of 110 meter in 10 days. The length of a similar wall built by 30 men in 6 days is
(A) 100 mts
(B) 90 mts
(C) 80 mts
(D) 70 mts

Answer: (B) 90 mts
$M_{1}=22, w_{1}=110 m, D_{1}=10, M_{2}=30, D_{2}=6, w_{2}=$ ?
$\frac{22 \times 10}{110}=\frac{30 X 6}{W 2} \quad W_{2}=90$ meter
Ans : 90 metre
23. A, B and C together earn Rs. 300 per day. While A and C together earn Rs. 188 and $B$ and $C$ together earn Rs. 152. The daily earning of $C$ is
(A) Rs. 68
(B) Rs. 150
(C) Rs. 112
(D) Rs. 40

Answer: (D) Rs. 40

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\begin{aligned}
& \mathrm{A}+\mathrm{C}=18 \mathrm{Rs} \\
& \mathrm{~B}+\mathrm{C}=152 \mathrm{Rs}
\end{aligned}
$$


$A-B=36$

$$
A=36+B
$$

$$
B+C=152
$$

$$
112+C=152
$$

$\mathrm{C}=40 \mathrm{Rs}$
Ans: 40 Rs.
24. If 12 men and 16 women can do a piece of work in 5 days. 13 men and 24 women can do it in 4 days. Then the ratio of the daily work done by a man to that of a woman is
(A) $3: 1$
(B) $2: 3$
(C) $2: 1$
(D) $4: 5$

Answer: (C) $2: 1$.
$12 \mathrm{~m}+16 \mathrm{~W}=1 / 5$ days, $\quad 13 \mathrm{~m}+24 \mathrm{~W}=1 / 4 /$ days
$60 m+80 W=1 \quad 52 m+96 w=1$
$60 \mathrm{~m}+80 \mathrm{w}=52 \mathrm{~m}+96 \mathrm{~W}$
$60 \mathrm{~m}-52 \mathrm{~m}=96 \mathrm{w}-80 \mathrm{w}$
$8 m=16 w$
$\mathrm{M}=2 \mathrm{w}$
M : W
2: 1
Ans: $2: 1$
25. A and B can do a work in 12 days. B and C in 15 days. C and A in 20 days. If
$\mathrm{A}, \mathrm{B}$ and C work together they will complete the work in
(A) $15 \frac{2}{3}$ days
(B) 5 days
(C) 10 days
(D) $6 \frac{5}{7}$ days
$2(A+B)=\frac{5+4+3}{60}=>\frac{12}{60}$
$=>A+B+C=\frac{12}{16 X 2}=>\frac{1}{10}$
Replaced by 10/1 days
Ans : 10 days
26. Two taps can fill a tank in 45 minutes and 60 minutes. Another tap can empty it in 30 minutes. If the tank is empty and all the 3 taps are kept open in how much time the tank will be filled?
(A) 3 hours
(B) 4 hours
(C) 6 hours
(D) 12 hours

Answer: (B) 4 Hours.
$A=1 / 45 \mathrm{~min}, B=1 / 60 \mathrm{~min}, C=1 / 30 \mathrm{~min}$ [ C is empty ]
Take LCM $=900 \Rightarrow \frac{20+15-30}{900}=>\frac{35-30}{900}$

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\Rightarrow \frac{5}{900}=\frac{1}{180} \text { Replaced by } \frac{180}{1} \min
$$

Ans: 3 hour

