BHARAT SCHOOL OF BANKING

WORK,TIME AND WAGES

Q1. 24 men working 8 hours a day can finish a work in 10 days. Find the number of men required to finish the same work in 6 days working 5 hours a day?
(a) 60
(b) 64
(c) 80
(d) 72
(e) None of these

S1. Ans.(b)
Sol. Applying the work rule we get
$m_1 \times d_1 \times t_1 \times w_2 = m_2 \times d_2 \times t_2 \times w_1$
$24 \times 10 \times 8 \times 1 = m_2 \times 6 \times 5 \times 1$
$$\Rightarrow m_2 = \frac{24 \times 10 \times 8}{6 \times 5} = 64 \text{ men}$$

Q2. A machine A can print one thousand books in 10 hours, machine B can print the same number of books in 12 hours while machine C print them in 15 hours. All the machines are started at 9 a.m. while machine A is closed at 11 a.m. and the remaining two machines complete the work. Approximately at what time will the work be finished?
(a) 11:30 a.m.
(b) 12 noon
(c) 12:30 pm
(d) 2:20 pm
(e) None of these

S2. Ans.(d)
Sol. Let the work got completed in T hours
Also, A's 2 hours' work + B's T hours' work + C's T hours' work equals the total work.
$$\Rightarrow \left(\frac{2}{10} + \frac{T}{12} + \frac{T}{15}\right) = 1 \Rightarrow T = \frac{16}{3} = 5\frac{1}{3},$$
hence the work will get completed in $5\frac{1}{3}$ hours after 9a.m. i.e. at 2:20 p.m.

Q3. The work done by a man, a woman and a child is in the ratio of 3 : 2 : 1. There are 20 men, 30 women and 48 children in a factory. Their weekly wages amount to Rs 840, which is divided in the ratio of work done by the men, women and children. What will be the wages of 15 men, 21 women and 30 children for 2 weeks?
(a) Rs 585

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(b) Rs 292.5
(c) Rs 1170
(d) Rs 900
(e) None of these

S3. Ans.(c)
Sol. Ratio of wages of 20 men, 30 women
and 48 children per week
$= (3 \times 20):(2 \times 30):(1 \times 48) = 5:5:4.$
Total wages of 20 men per week $= \frac{5}{14} \times 840$
$= Rs\ 300$
Therefore, wages of a man per week = Rs 15,
similarly, wages of woman per week
= Rs. 10 and wages of child per week Rs 5
Total wages of (15 men, 21 women and 30
children) per week
= 15×15 + 21×10 + 30×5 = 585
Total wages for 2 weeks = Rs 1170

Q4. A work could be completed in 100 days by some workers. However, due to the absence of 10 workers, it was completed in 110 days. The original number of workers was:
(a) 100
(b) 110
(c) 55
(d) 50
(e) None of these

S4. Ans.(b)
Sol. Let the original number of workers be x.
∴ x workers can do the work in 100 days
(x – 10) workers can do the work in 110 days
$\Rightarrow 100x = 110(x - 10)$
$\Rightarrow 10x = 1100 \Rightarrow x = 110$

Q5. A can do a work in 12 days. When he had worked for 3 days, B joined him. If they complete the work in 3 more days, in how many days can B alone finish the work?
(a) 6 days
(b) 12 days
(c) 4 days

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(d) 8 days
(e) None of these

S5. Ans.(a)
Sol. Work done by A for 3 days $= \frac{3}{12} = \frac{1}{4}$

∴ Remaining work $= 1 - \frac{1}{4} = \frac{3}{4}$

∴ Work done by (A + B) for 1 day $= \frac{3}{4} \times \frac{1}{3} = \frac{1}{4}$

∴ Work done by B for 1 day

$$= \frac{1}{4} - \frac{1}{12} = \frac{2}{12} = \frac{1}{6}$$

∴ B alone will complete the work in 6 days.

Q6. A is thrice as good a workman as B, therefore, A is able to finish a piece of work in 60 days less that B. The time (in days) in which they can do it working together is:
(a) 22
(b) 22 1/2
(c) 23
(d) 23 1/4
(e) None of these

S6. Ans.(b)
Sol. Let the number of days taken by A to complete the work be x days.
Therefore, days taken by B to complete the same = 3x days.
So, 3x − x = 60
⇒ 2x = 60
⇒ x = 30
And 3x = 3 × 30 = 90
Therefore, (A + B)'s 1 day's work

$$= \frac{1}{30} + \frac{1}{90} = \frac{3+1}{90} = \frac{4}{90} = \frac{2}{45}$$

Hence, A and B together will do the work in
$\frac{45}{2} = 22\frac{1}{2}$ days.

Q7. A and B working separately can do a piece of work in 9 and 12 days, respectively. If they work for a day alternately with A beginning, the work would be complete in:
(a) 10 2/3 days
(b) 10 1/2 days

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(c) 10 1/4 days
(d) 10 1/3 days
(e) None of these

S7. Ans.(c)
Sol. Portion of work done by A and B in first
two days = $\frac{1}{9} + \frac{1}{12} = \frac{4+3}{36} = \frac{7}{36}$
Portion of work done in the first 10 days = $\frac{35}{36}$
Remaining work = $1 - \frac{35}{36} = \frac{36-35}{36} = \frac{1}{36}$
Therefore, time taken by
A = $\frac{1}{36} \times 9 = \frac{1}{4}$ day
Hence, total time = $10 + \frac{1}{4}$
$= \frac{40+1}{4} = \frac{41}{4} = 10\frac{1}{4}$ days

Q8. A can do a piece of work in 24 days, B in 32 days and C in 64 days. Everyone begin to do it together, but A leaves after 6 days B leaves 6 days before the completion of the work. How many days did the work last?
(a) 15
(b) 20
(c) 18
(d) 30
(e) None of these

S8. Ans.(b)
Sol. Let, the work be finished in x days.
∴ work done by A in 6 days + work done by B in (x − 6) days + work done by C in x days = 1
Now, according to the question,
$$\frac{6}{24} + \frac{(x-6)}{32} + \frac{x}{64} = 1$$
$$\Rightarrow \frac{x-6}{32} + \frac{x}{64} = 1 - \frac{1}{4} = \frac{3}{4}$$
$$\Rightarrow \frac{2x-12+x}{64} = \frac{3}{4}$$
$$\Rightarrow 3x - 12 = \frac{3}{4} \times 64 = 48$$
$$\Rightarrow 3x = 60$$
$$\therefore x = \frac{60}{3} = 20 \text{ days.}$$

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Q9. A, B and C have to type 506 pages to finish an assignment. A can type a page in 12 minutes, B in 15 minutes and C in 24 minutes. If they divide the task into three parts so that all three of equal amount of time in typing, what is the number of pages that B should type?
(a) 172
(b) 176
(c) 154
(d) 168
(e) 164

S9. Ans.(b)
Sol. All three spend equal amount of time on typing.
Required ratio of all the three
$A : B : C = \frac{1}{12} : \frac{1}{15} : \frac{1}{24} = 10 : 8 : 5$
So, the number of pages typed by B = $\frac{8 \times 506}{23} = 176$

Q10. If A works alone, he would take 4 days more to complete the job than if both A and B worked together. If B worked alone, he would take 16 days more to complete the job than if A and B work together. How many days would they take to complete the work if both of them worked together?
(a) 10 days
(b) 12 days
(c) 6 days
(d) 8 days
(e) None of these

S10. Ans.(d)
Sol. Let A and B together complete the work in x days.
Then, time taken by A = (x + 4) days
And, time taken by B = (x + 16) days
Now, according to the question,
$$\frac{1}{x + 4} + \frac{1}{x + 16} = \frac{1}{x}$$
$$\Rightarrow \frac{x + 16 + x + 4}{(x + 4)(x + 16)} = \frac{1}{x}$$
$$\Rightarrow 2x^2 + 20x = x^2 + 20x + 64$$
$$\Rightarrow x^2 = 64 \Rightarrow x = \sqrt{64} = 8 \text{ days}$$

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