CDS-AFCAT 1 2025

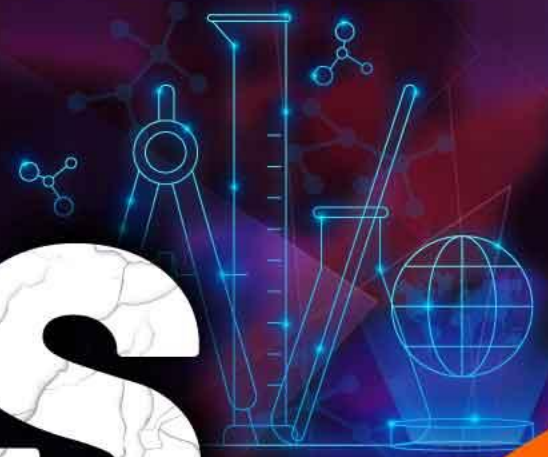
SSBCrack EXAMS

LIVE

MATHS

TIME & WORK

MCQS



NAVJYOTI SIR

24 Jan 2025 Live Classes Schedule

9:00AM	24 JANUARY 2025 DAILY DEFENCE UPDATES	DIVYANSHU SIR
10:00AM	24 JANUARY 2025 DAILY CURRENT AFFAIRS	RUBY MA'AM

AFCAT 1 2025 LIVE CLASSES

12:30PM	REASONING - FIGURE ANALOGY	RUBY MA'AM
3:00PM	STATIC GK - SPORTS	DIVYANSHU SIR
5:30PM	MATHS - TIME & WORK	NAVJYOTI SIR

NDA 1 2025 LIVE CLASSES

10:00AM	MATHS - TRIGONOMETRY - CLASS 2	NAVJYOTI SIR
11:30AM	MEDIEVAL HISTORY - CLASS 2	RUBY MA'AM
1:00PM	PHYSICS - HUMAN EYE & THE COLOURFUL WORLD	NAVJYOTI SIR

CDS 1 2025 LIVE CLASSES

11:30AM	MEDIEVAL HISTORY - CLASS 2	RUBY MA'AM
1:00PM	PHYSICS - HUMAN EYE & THE COLOURFUL WORLD	NAVJYOTI SIR
5:30PM	MATHS - TIME & WORK	NAVJYOTI SIR

Q) A can do a job in 3 days less time than B. A works at it alone for 4 days and then B takes over and completes it. If altogether 14 days were required to finish the job, then in how many days would each of them take alone to finish it?

(a) 17 days, 20 days (b) 12 days, 15 days

(c) 13 days, 16 days (d) None of these

Let B takes x days $\Rightarrow$ A takes $(x-3)$ days.

$\frac{1}{x}$ —— (one day work) $\frac{1}{x-3}$

$4\left(\frac{1}{x-3}\right) = \frac{4}{x-3}$

Remaining Work $= 1 - \frac{4}{x-3}$

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$= \left(\frac{x-7}{x-3}\right)$

$\frac{\frac{x-7}{x-3}}{\frac{1}{x}} = 10$ $\quad (14 - 4 = 10 \text{ days})$

$\frac{x(x-7)}{x-3} = 10$

B — options

20, 15, 16

put options and check ;

$x = 15 \longrightarrow$ (B)

$x - 3 = 12 \longrightarrow$ (A)

Q) A can do a job in 3 days less time than B. A works at it alone for 4 days and then B takes over and completes it. If altogether 14 days were required to finish the job, then in how many days would each of them take alone to finish it?

(a) 17 days, 20 days (b) 12 days, 15 days

(c) 13 days, 16 days (d) None of these

Ans: (b)

Q) A group of men decided to do a job in 4 days. But since 20 men dropped out every day, the job completed at the end of the 7th day. How many men were there at the beginning?

(a) 240 (b) 140

(c) 280 (d) 150

x

$$x \times 4 = (1 \times x) + (1 \times (x-20) + \dots 1 \times (x - (20 \times 6))$$

$$4x = x + (x-20) + (x-40) + (x-60) + (x-80) + (x-100) + (x-120)$$

$$4x = 7x + (-420)$$

$$3x = 420 \Rightarrow x = 140$$

Q) A group of men decided to do a job in 4 days. But since 20 men dropped out every day, the job completed at the end of the 7th day. How many men were there at the beginning?

(a) 240 (b) 140

(c) 280 (d) 150

Ans: (b)

Q) A can do 50% of the job in 16 days, B can do 1/4th of the job in 24 days. In how many days can they do $3/4^{th}$ of the job working together?

(a) 24 (b) 9 (c) 21 (d) 18

$50\% \longrightarrow 16$ days

$100\% \longrightarrow 32$ days

One day work of A $= \frac{1}{32}$

$\frac{1}{4} \longrightarrow 24$ days

$1 \longrightarrow 24 \times 4 = 96$ days

One day work of B $= \frac{1}{96}$

$$\frac{\frac{3}{4}}{\left(\frac{1}{32}+\frac{1}{96}\right)} = \frac{3}{4} \times \frac{96}{3+1} = \frac{3 \times 96^{6}}{4 \times 4} = 18 \text{ days}$$

Q) A can do 50% of the job in 16 days, B can do 1/4th of the job in 24 days. In how many days can they do $3/4^{th}$ of the job working together?

(a) 24 (b) 9 (c) 21 (d) 18

Ans: (d)

Q) A and B can together complete a task in 18 hours. After 6 hours A leaves. B takes 36 hours to finish rest of the task. How many hours would A have taken to do the task if he worked alone?

(a) 54 (b) 45 (c) 21 (d) 27

$(A+B) \longrightarrow 18$ hrs $\longrightarrow$ Together one hour work $= \frac{1}{18}$

$A \longrightarrow x$ hours $\Rightarrow$ 1 hour work for $A = \frac{1}{x}$

$B \longrightarrow y$ hours

$\frac{1}{x} + \frac{1}{y} = \frac{1}{18}$

$\frac{1}{y} = \frac{1}{18} - \frac{1}{x} = \frac{x-18}{18x}$

$\left(\frac{1}{y} = \frac{x-18}{18x}\right)$

$6\left(\frac{1}{18}\right)$ — work done by $(A+B)$

$\frac{1}{3}$ / Remaining work $= 1 - \frac{1}{3} = \frac{2}{3}$

$$\frac{\frac{2}{3}}{\frac{1}{y}} = 36$$

$$\frac{\frac{2}{3}}{\frac{x-18}{18x}} = 36$$

$$\frac{2}{3} \times \frac{6\,18x}{x-18} = \frac{3\,6}{36}$$

$$\frac{x}{x-18} = 3$$

$$x = 3x - 54$$

$$2x = 54$$

$$x = 27$$

Q) A and B can together complete a task in 18 hours. After 6 hours A leaves. B takes 36 hours to finish rest of the task. How many hours would A have taken to do the task if he worked alone?

(a) 54 (b) 45 (c) 21 (d) 27

Ans: (d)

Q) Two workers '*A*' and '*B*' working together completed a job in 5 days. Had '*A*' worked twice as efficiently as he actually did and '*B*' worked one-third as efficiently as he actually did, the work would have completed in 3 days. In how many days could '*A*' alone complete the job?

(*a*) $3\frac{1}{2}$ days (*b*) $4\frac{1}{6}$ days (*c*) $5\frac{1}{2}$ days (*d*) $6\frac{1}{4}$ days

x days

A's 1 day work = $\frac{1}{x}$ (efficiency)

B's 1 day work = $\frac{1}{5} - \frac{1}{x}$

$= \frac{x-5}{5x}$ (efficiency)

$$2\left(\frac{1}{x}\right) + \frac{1}{3}\left(\frac{x-5}{5x}\right) = \frac{1}{3}$$

$$2\left(\frac{1}{x}\right) + \frac{1}{3}\left(\frac{x-5}{5x}\right) = \frac{1}{3}$$

$$\frac{30 + x - 5}{15x} = \frac{1}{3}$$

$$75 + 3x = 15x$$

$$12x = 75$$

$$x = \frac{75}{12} = \frac{25}{4} = 6\frac{1}{4} \text{ days}$$

Q) Two workers '*A*' and '*B*' working together completed a job in 5 days. Had '*A*' worked twice as efficiently as he actually did and '*B*' worked one-third as efficiently as he actually did, the work would have completed in 3 days. In how many days could '*A*' alone complete the job?

(*a*) $3\frac{1}{2}$ days (*b*) $4\frac{1}{6}$ days (*c*) $5\frac{1}{2}$ days (*d*) $6\frac{1}{4}$ days

Ans: (d)

Q) Two pipes A and B can fill a tank in 36 min. and 45 min. respectively. A waste pipe C can empty the tank in 30 min. First A and B are opened. After 7 min., C is also opened. In how much time, the tank is full?

(a) 60 min (b) 30 min

(c) 39 min (d) 13 min

$$7\left(\frac{1}{36}+\frac{1}{45}\right)=7\left(\frac{5+4}{180}\right)=7\left(\frac{9}{180}\right)=\frac{7}{20}$$

Remaining portion to be filled $= 1-\frac{7}{20}=\frac{13}{20}$

$$\frac{\frac{13}{20}}{\frac{1}{36}+\frac{1}{45}-\frac{1}{30}}$$

$$\frac{13}{20}\times\frac{180}{5+4-6}$$

$$\frac{13}{\cancel{20}}\times\frac{\overset{3}{\cancel{60}}}{}=39\text{ min}$$

Q) Two pipes A and B can fill a tank in 36 min. and 45 min. respectively. A waste pipe C can empty the tank in 30 min. First A and B are opened. After 7 min., C is also opened. In how much time, the tank is full?

(a) 60 min
(b) 30 min
(c) 39 min
(d) 13 min

Ans: (c)

Q) Working together A and B can do a job in 40 days, B and C in 36 days and all three together in 24 days. In how many days can B alone do the job?

(a) 60 (b) 90 (c) 72 (d) 120

$\frac{1}{A} + \frac{1}{B} = \frac{1}{40}$ — ①

$\frac{1}{B} + \frac{1}{C} = \frac{1}{36}$ — ②

$\frac{1}{A} + \frac{1}{B} + \frac{1}{C} = \frac{1}{24}$ — ③

① + ② − ③,

$\frac{1}{40} + \frac{1}{36} - \frac{1}{24}$

$\frac{9 + 10 - 15}{360}$

$\frac{4}{360}$

$\frac{1}{B} = \frac{4}{360} = \frac{1}{90} \Rightarrow$ B = 90 days ✓

4 × 10 — 2 × 5

4 × 9 — 3 × 3

4 × 6 — 2 × 3

4 × 2 × 3 × 3 × 5

72 × 5 = 360

Q) Working together A and B can do a job in 40 days, B and C in 36 days and all three together in 24 days. In how many days can B alone do the job?

(a) 60 (b) 90 (c) 72 (d) 120

Ans: (b)

Q) In a water tank there are two outlets. It takes 20 minutes to empty the tank if both the outlets are opened. If the first outlet is opened, the tank is emptied in 30 minutes. What is the time taken to empty the tank by second outlet ?

(a) 30 minutes (b) 40 minutes
(c) 50 minutes (d) 60 minutes

'A' min 'B' mins

$$\frac{1}{20} = \frac{1}{A} + \frac{1}{B}$$

$$\frac{1}{20} = \frac{1}{30} + \frac{1}{B} \Rightarrow \frac{1}{B} = \frac{1}{20} - \frac{1}{30} = \frac{10}{600} = \frac{1}{60} \Rightarrow B = 60 \text{ mins.}$$

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(a) 30 minutes (b) 40 minutes

(c) 50 minutes (d) 60 minutes

Ans: (d)

Q) If 6 men and 8 women can do a piece of work in 10 days; and 13 men and 24 women can do the same work in 4 days, then what is the ratio of daily work done by a man to that of a woman ?

(a) 2 : 1 (b) 1 : 2

(c) 4 : 3 (d) 3 : 4

$\frac{1}{x}$

$\frac{1}{y}$

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

$6\left(\frac{1}{x}\right) + 8\left(\frac{1}{y}\right) = \frac{1}{10}$

$13\left(\frac{1}{x}\right) + 24\left(\frac{1}{y}\right) = \frac{1}{4}$

$\frac{1}{x} = u$

$\frac{1}{y} = v$

$6u + 8v = \frac{1}{10}$

$13u + 24v = \frac{1}{4}$

Q) If 6 men and 8 women can do a piece of work in 10 days; and 13 men and 24 women can do the same work in 4 days, then what is the ratio of daily work done by a man to that of a woman ?

(a) 2 : 1
(b) 1 : 2
(c) 4 : 3
(d) 3 : 4

Ans: (a)

Q) The efficiencies of A, B and C are in the ratio of 5 : 3 : 2. Working together, they can complete a task in 21 hours. In how many hours will B alone complete 40% of that task?

(a) 28 (b) 24 (c) 35 (d) 21

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(a) 28 (b) 24 (c) 35 (d) 21

Ans: (a)

Q) To do a certain work, the ratio of efficiency of A to that of B is 3 : 7. Working together, they can complete the work in $10\frac{1}{2}$ days. They work together for 8 days. 60% of the remaining work will be completed by A alone in:

(a) $5\frac{1}{2}$ days

(b) 5 days

(c) $6\frac{1}{2}$ days

(d) 4 days

Q) To do a certain work, the ratio of efficiency of A to that of B is 3 : 7. Working together, they can complete the work in $10\frac{1}{2}$ days. They work together for 8 days. 60% of the remaining work will be completed by A alone in:

(a) $5\frac{1}{2}$ days

(b) 5 days

(c) $6\frac{1}{2}$ days

(d) 4 days

Ans: (b)

Q) A hot pipe takes 3 minutes longer to fill a tank than the cold pipe. Together they take 6 minutes 40 seconds. Time taken by the cold pipe alone to fill the tank is

(a) 6 min (b) 18 min

(c) 9 min (d) 12 min

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(a) 6 min (b) 18 min

(c) 9 min (d) 12 min

Ans: (d)

Q) Three pipes A, B and C can fill a tank from empty to full in 30 minutes, 20 minutes and 10 minutes respectively. When the tank is empty, all the three pipes are opened. A , B and C discharge chemical solutions P, Q and R respectively. What is the proportion of solution R in the liquid in the tank after 3 minutes?

(a) $\frac{5}{11}$

(b) $\frac{6}{11}$

(c) $\frac{7}{11}$

(d) $\frac{8}{11}$

Q) Three pipes A, B and C can fill a tank from empty to full in 30 minutes, 20 minutes and 10 minutes respectively. When the tank is empty, all the three pipes are opened. A , B and C discharge chemical solutions P, Q and R respectively. What is the proportion of solution R in the liquid in the tank after 3 minutes?

(a) $\frac{5}{11}$ (b) $\frac{6}{11}$

(c) $\frac{7}{11}$ (d) $\frac{8}{11}$

Ans: (b)

Q) Two pipes can fill a cistern in 14 and 16 hours respectively. The pipes are opened simultaneously and it is found that due to leakage in the bottom, 32 minutes extra are taken for the cistern to be filled up. If the cistern is full, in what time would the leak empty it ?

(a) 110 hr (b) 112 hr (c) 115 hr (d) 100 hr

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(a) 110 hr (b) 112 hr (c) 115 hr (d) 100 hr

Ans: (b)

Q) 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 36 children in a factory. Their weekly wages amount to ₹ 780, 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) ₹585 (b) ₹292.5 (c) ₹1170 (d) ₹900

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(a) ₹585 (b) ₹292.5 (c) ₹1170 (d) ₹900

Ans: (c)

Q) A cistern has two taps which fill it in 12 minutes and 15 minutes respectively. There is also a waste pipe in the cistern. When all he three are opened, the empty cistern is full in 20 minutes. How long will the waste pipe take to empty the full cistern?

(a) 10 min
(b) 12 min
(c) 15
(d) None of these

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(a) 10 min
(b) 12 min
(c) 15
(d) None of these

Ans: (a)

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AVERAGE

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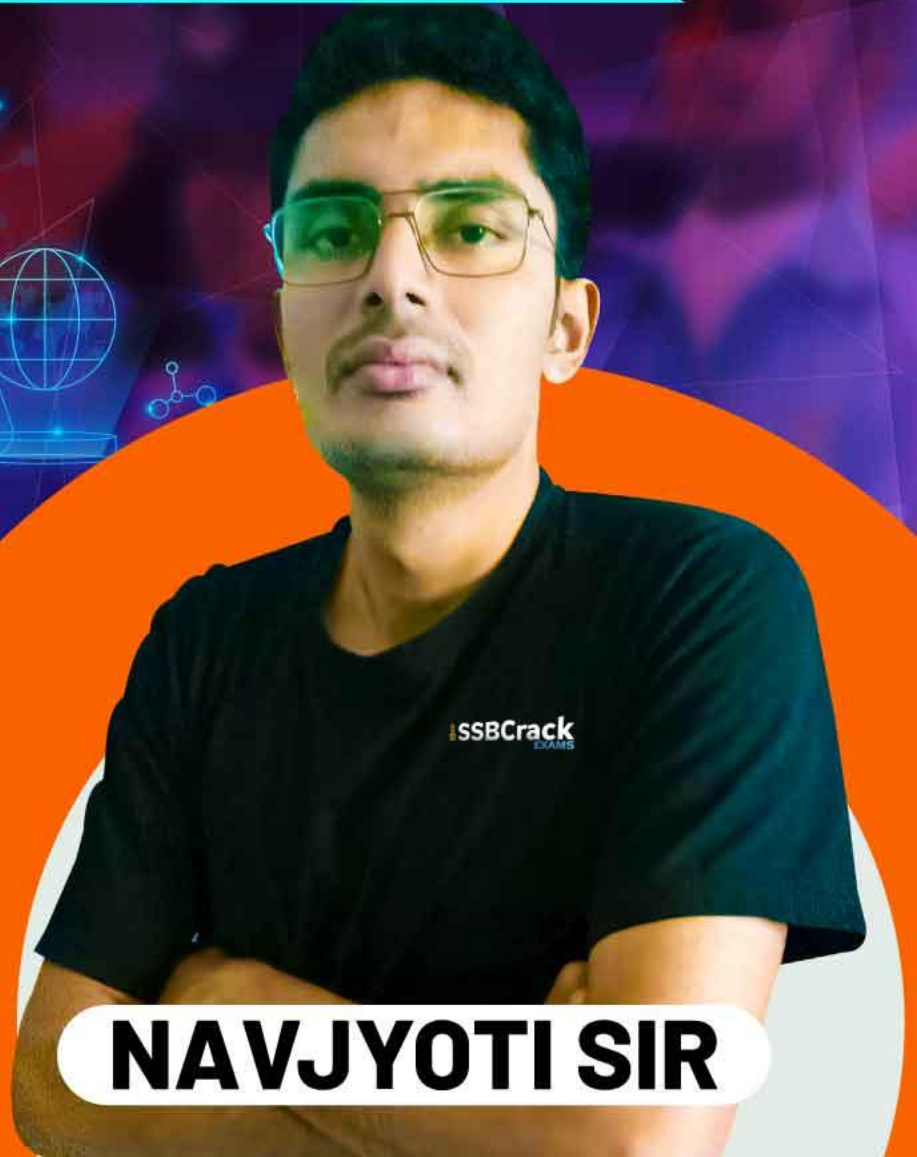

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