GATE 2021

GENERAL APTITUDE

धमाकेदार ट्रिक के साथ 🔥🔥

34

TIME, SPEED & DISTANCE, -6

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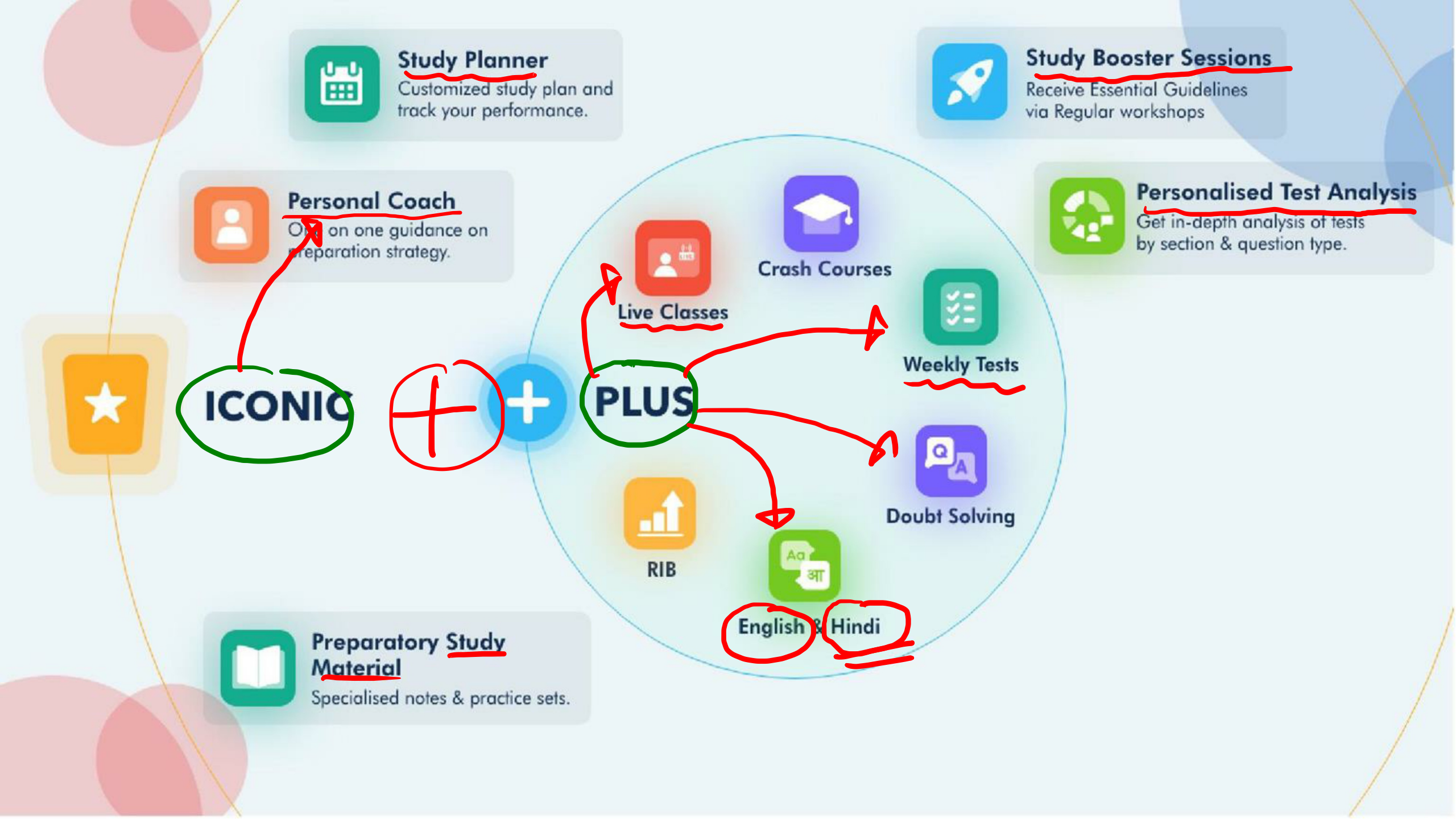
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BY AVINASH SIR

28 Nov, 2020

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Home Work Question

It takes 10 s and 15 s respectively, for two trains traveling at different constant speeds to completely -pass a telegraph post. The length of the first train is 120 m and that of the second train is 150 m. The magnitude of the difference in the speeds of the two trains (in m/s) is

[GATE 2016]

(A) 2.0 (B) 10.0 (C) 12.0 (D) 22.0

120 m ⟶ 10 sec ⇒ S = 12 m/sec

150 m ⟶ 15 sec ⇒ S = 10 m/sec

2

Today's Class Agenda

- Remaining Questions based on Train
- Previous Year Question Discussion

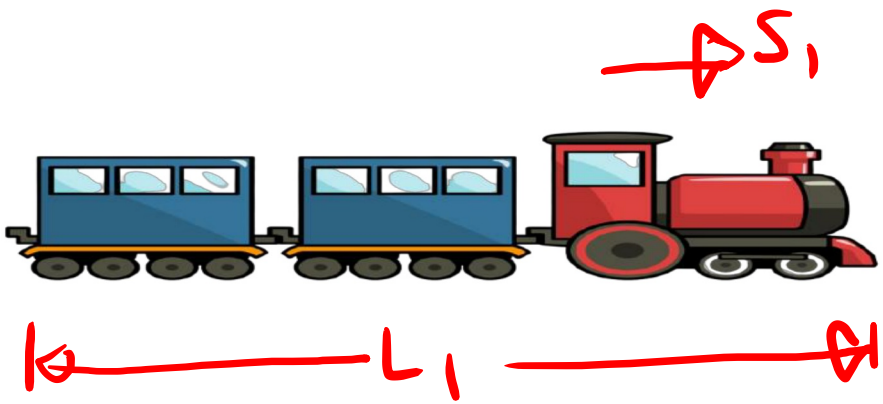
Question Based on train

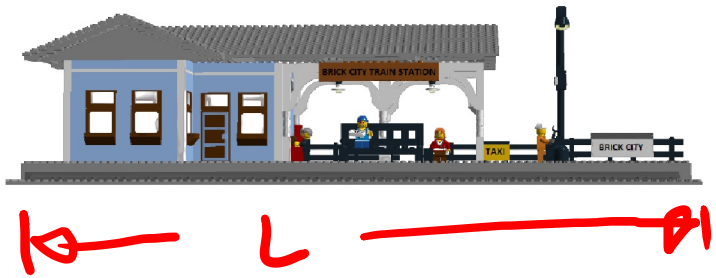
CASE-1: Moving body & a stationary body of negligible length

$$T = \frac{L}{S}$$

Question Based on train

CASE-2 : Moving body & a stationary body of length L

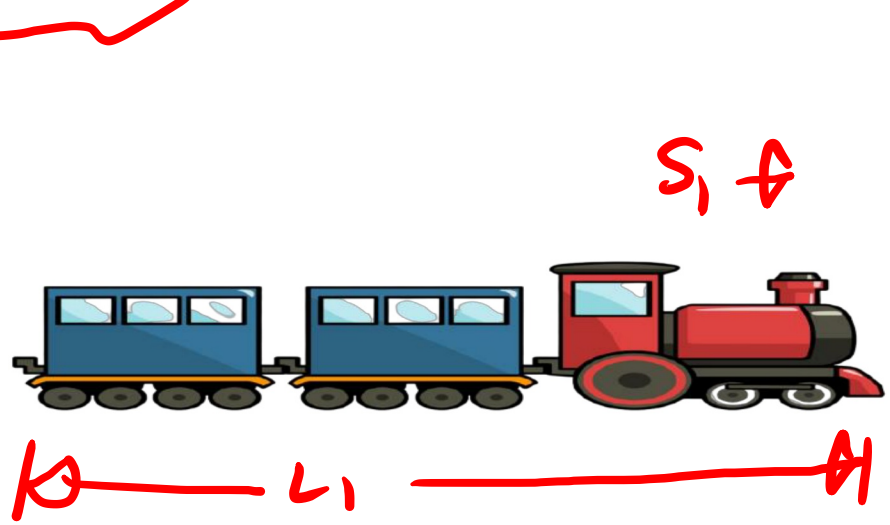


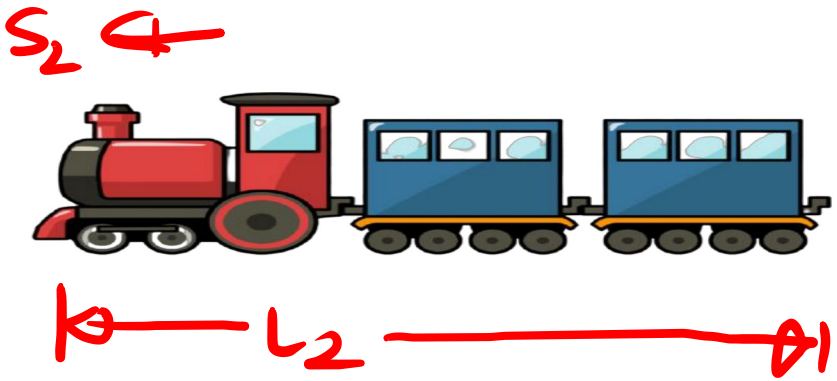


$$T = \frac{L + L_1}{S_1}$$

Question Based on train

CASE-3 : Two moving body in opposite direction

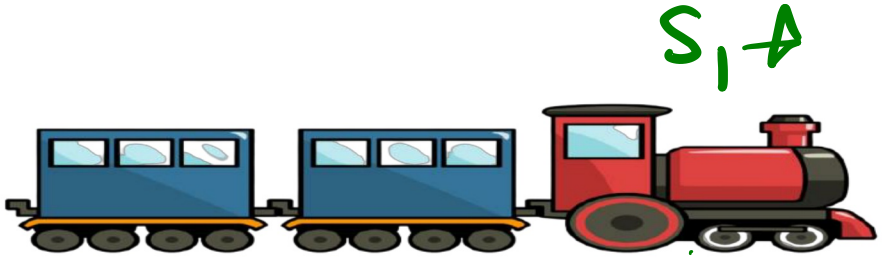


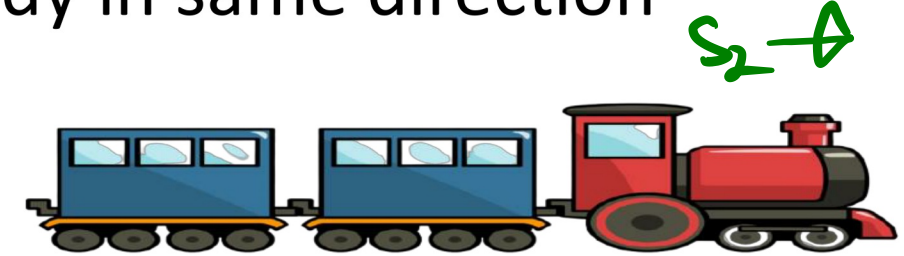


$$T = \frac{L_1 + L_2}{S_1 + S_2}$$

Question Based on train

CASE-4 : Two moving body in same direction





$S_1 > S_2$

$$T = \frac{L_1 + L_2}{S_1 - S_2}$$

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1) Two trains are running in opposite directions in the same speed. The length of each train is 120 meter. If they cross each other in 12 seconds, the speed of each train (in km/hr) is

A) 42 B) 36 C) 28 D) 20

$120+120 = 240\,m \longrightarrow 12\,sec \Rightarrow S = \frac{240}{12} = 20\,m/s$

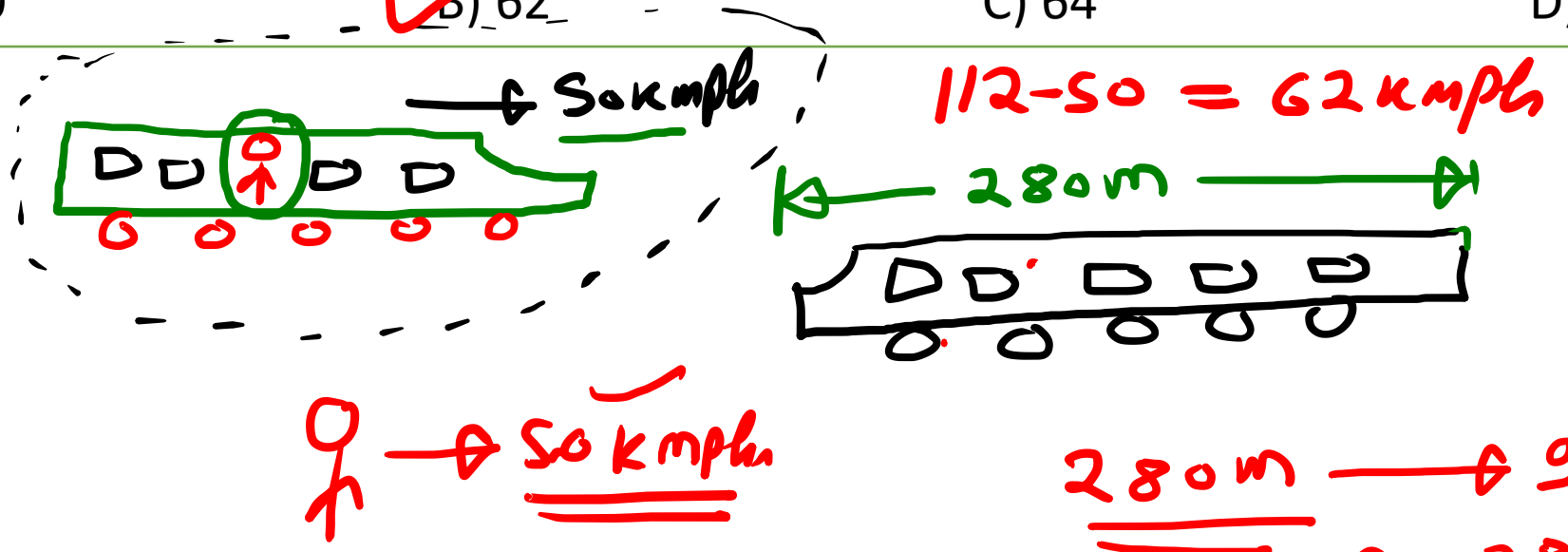
$S = 10\,m/sec = 10 \times \frac{18}{5}\,km/hr$

$= 36\,km/hr$

Aptitude for GATE/ESE/PSUs/AE/JE/College Placement, Topic- Time, Speed & Distance

2) A man sitting in a train which is traveling at 50 kmph observes that a goods train, traveling in opposite direction, takes 9 seconds to pass him. If the goods train is 280 m long, find its speed.?

A) 60 B) 62 C) 64 D) 65



280m → 9 sec

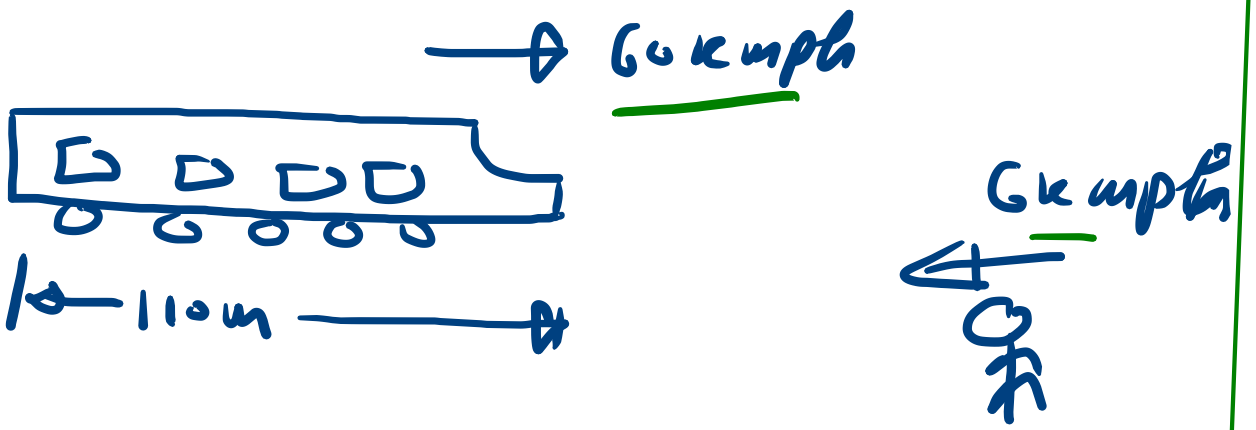
$S = \frac{280}{9}$ m/sec

$\leftarrow$ 112 kmph $= \frac{280}{9} \times \frac{18}{5}$ km/h

Aptitude for GATE/ESE/PSUs/AE/JE/College Placement, Topic- Time, Speed & Distance

3) A train of length 110 meter is running at a speed of 60 kmph. In what time, it will pass a man who is running at 6 kmph in the direction opposite to that in which the train is going?

A) 10 B) 8 C) 6 D) 4



$$T = \frac{110}{55/3} = \frac{330}{55} = \frac{33}{5} = 6$$

110 m

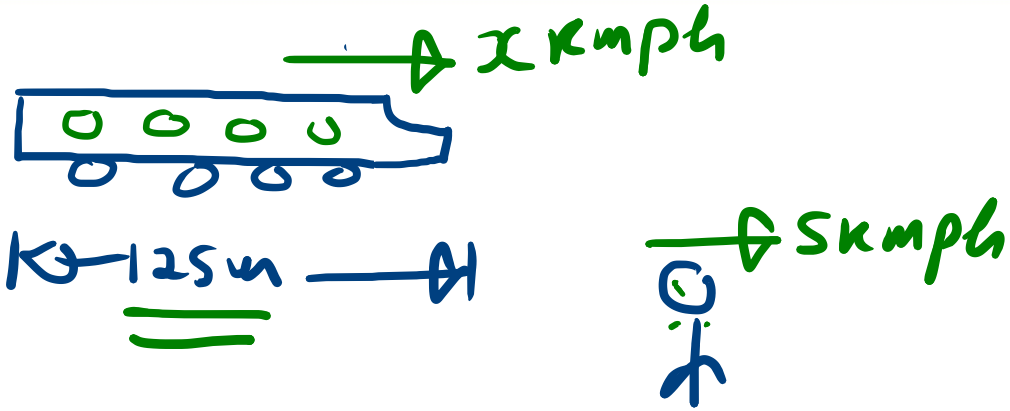
(60+6) kmph

66 kmph

$$66 \times \frac{5}{18} = \frac{55}{3}\ m/s$$

4) A train 125 m long passes a man, running at 5 km/hr in the same direction in which the train is going, in 10 seconds. The speed of the train is ?

A) 45 kmph B) 25 kmph C) 30 kmph D) 50 kmph



125 m → 10 sec

12.5 m/sec

1 kmph = $\frac{5}{18}$ m/sec

$(x-5) = 12.5 \times \frac{18}{5}$

$x = 50$ kmph

Aptitude for GATE/ESE/PSUs/AE/JE/College Placement, Topic- Time, Speed & Distance

5) A 320 m long train moving with an average speed of 120 km/hr crosses a platform in 24 sec. A man crosses the same platform in 4 minutes. What is the speed of man in m/s?

[GATE]

A) 2.4 B) 1.5 C) 1.6 D) 2

$320 + L_p \rightarrow 24$ sec

800 m

$L_p = 480$ m

$\frac{480}{x} = \frac{4 \times 60}{1}$

$x = \frac{480}{4 \times 60} = 2$ m/sec

$S_T = 120$ kmph $= 120 \times \frac{5}{18} = \frac{100}{3}$ m/sec

3 sec → 100 m

24 sec → 800 m

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6) A man covered a distance of 2000 km in 18 hours partly by bus at 72 kmph and partly by train at 160 kmph. The distance covered by bus is **[VIZAG STEEL PLANT, 2015]**

A) 1280 km B) 720 km C) 860 km D) 640 km

Aptitude for GATE/ESE/PSUs/AE/JE/College Placement, Topic- Time, Speed & Distance

7) A man completes 30 km of a journey at $6\ km$ and the remaining 40 km of the journey in 5 hours. His average speed for the whole journey is: **[RRB-2014(JE), BILASPUR]**

(A) $6\frac{4}{11}\ kmph$ (B) $7\ kmph$ (C) $7\ \frac{1}{2}\ kmph$ (D) $8\ kmph$

8) A boy goes to school from his village at 3 kmph and return back at 2 kmph. If he takes 5 hours in all, the distance between the village and school is

[VIZAG STEEL PLANT, 2015]

A) 6 km B) 7 km C) 8 km D) 9 km

Home Work Question

A train speeds past a pole in 15 seconds and a platform 100 m long in 25 seconds. Its length is:

A) 50m B) 150m C) 200m D) NOTA

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5 Q → 1 M
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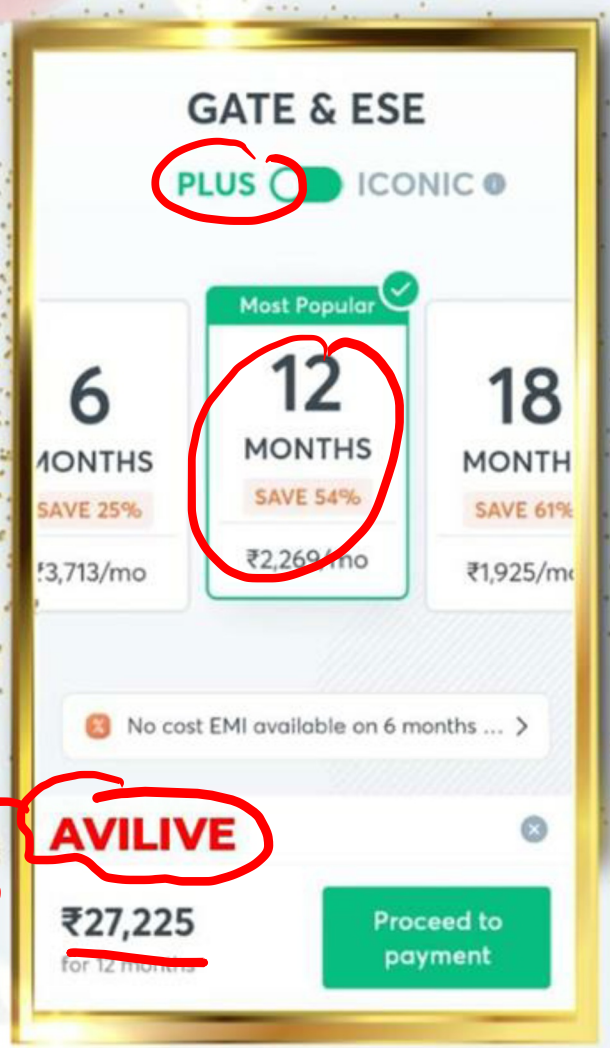
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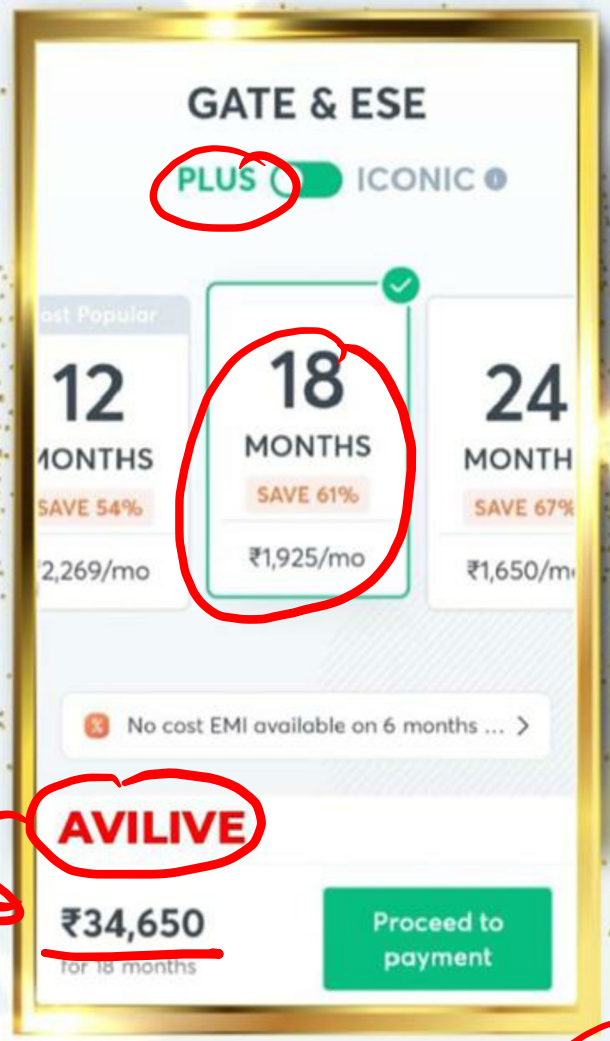
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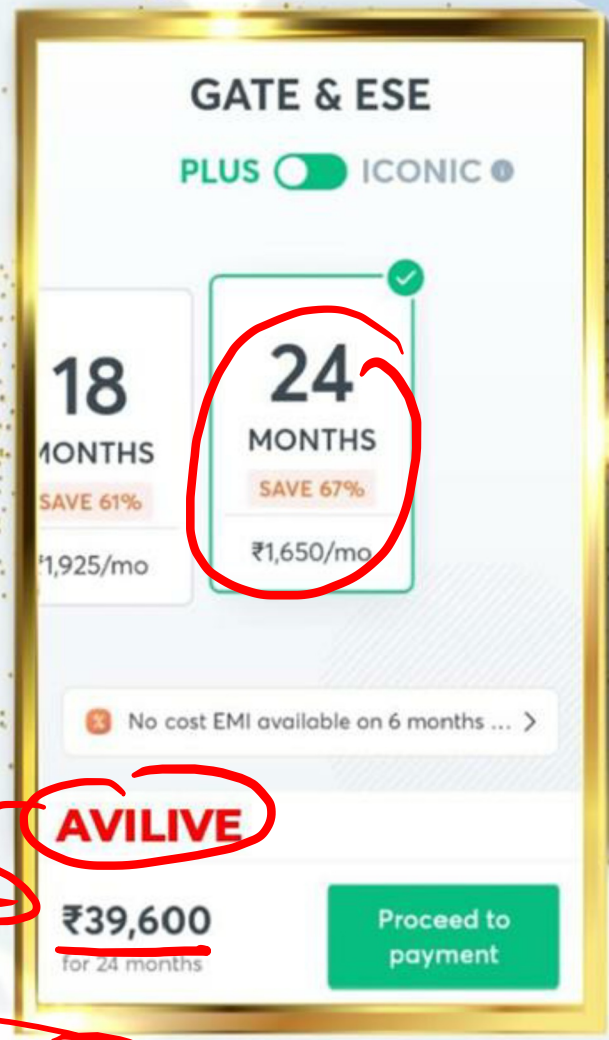
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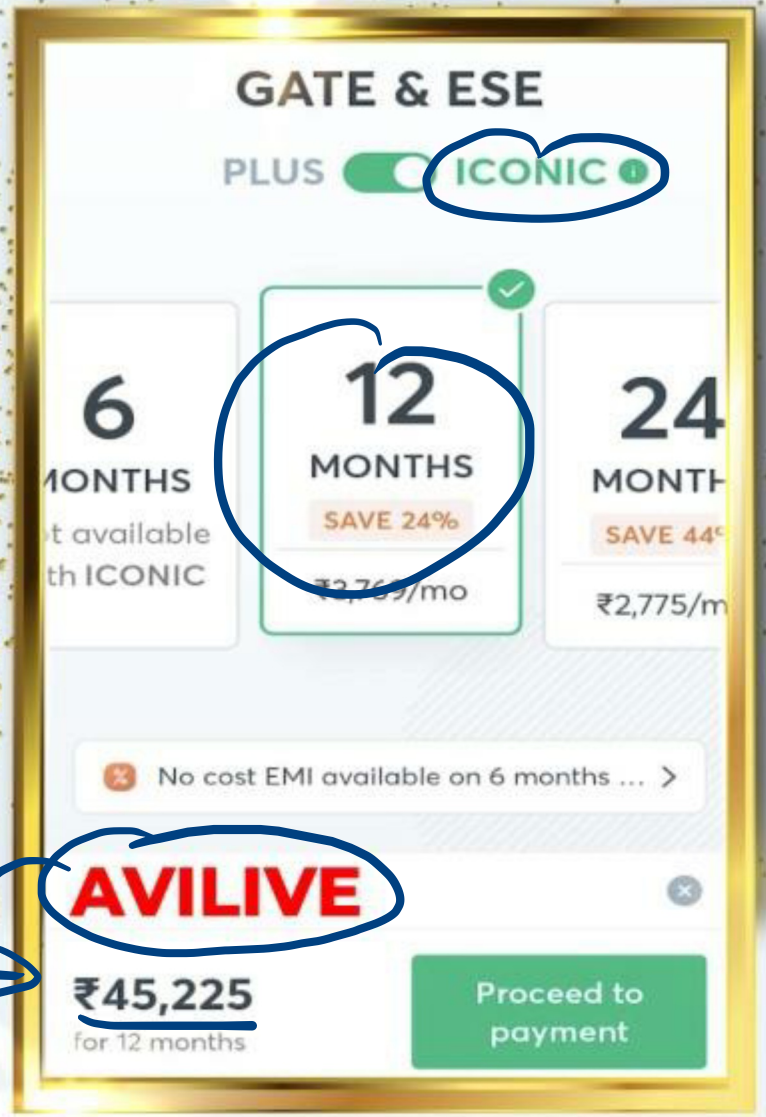
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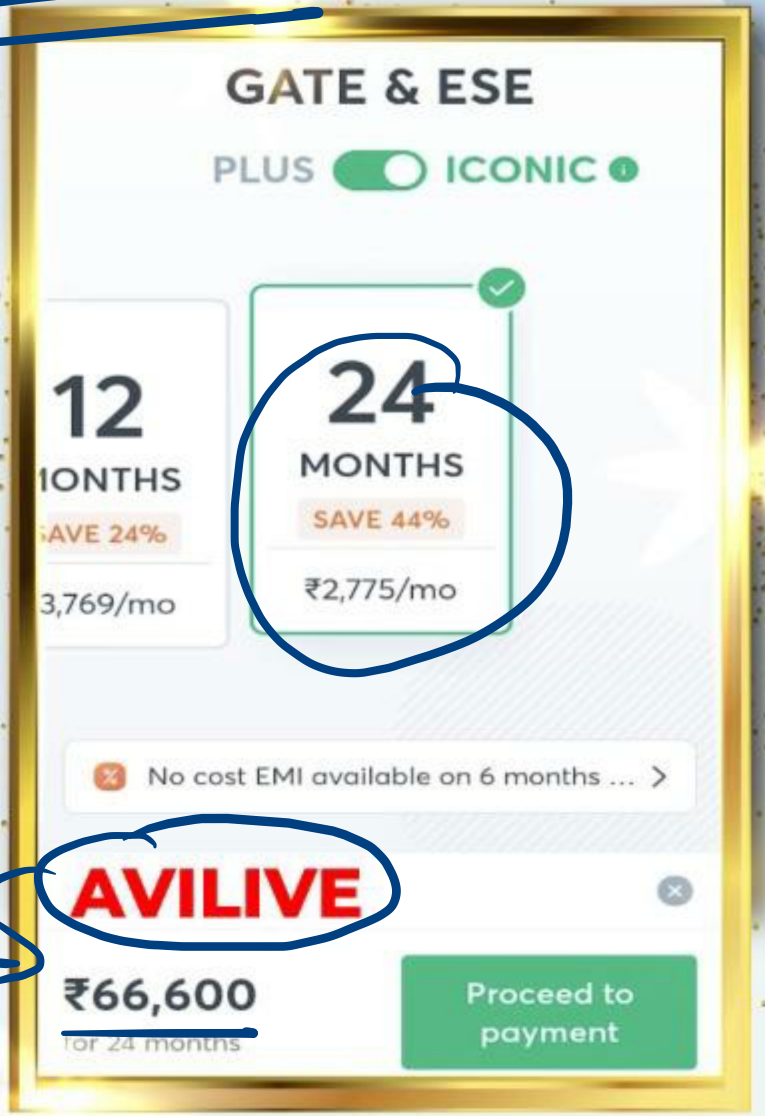
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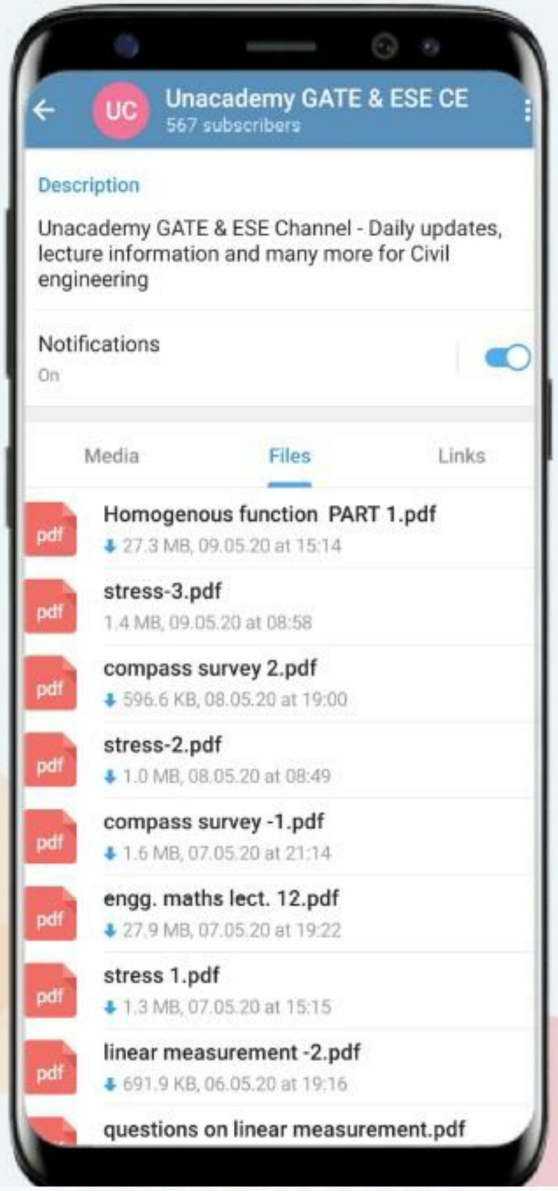

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