

GATE 2021

GENERAL APTITUDE

धमाकेदार ट्रिक के साथ 🔥🔥

PERCENTAGE-7

AVINASH SIR



43



AVINASH SINGH SIR

GATE | EE (CE)



Secured Score 99.86% in
CAT (Quantitative Section)



GATE/ESE:

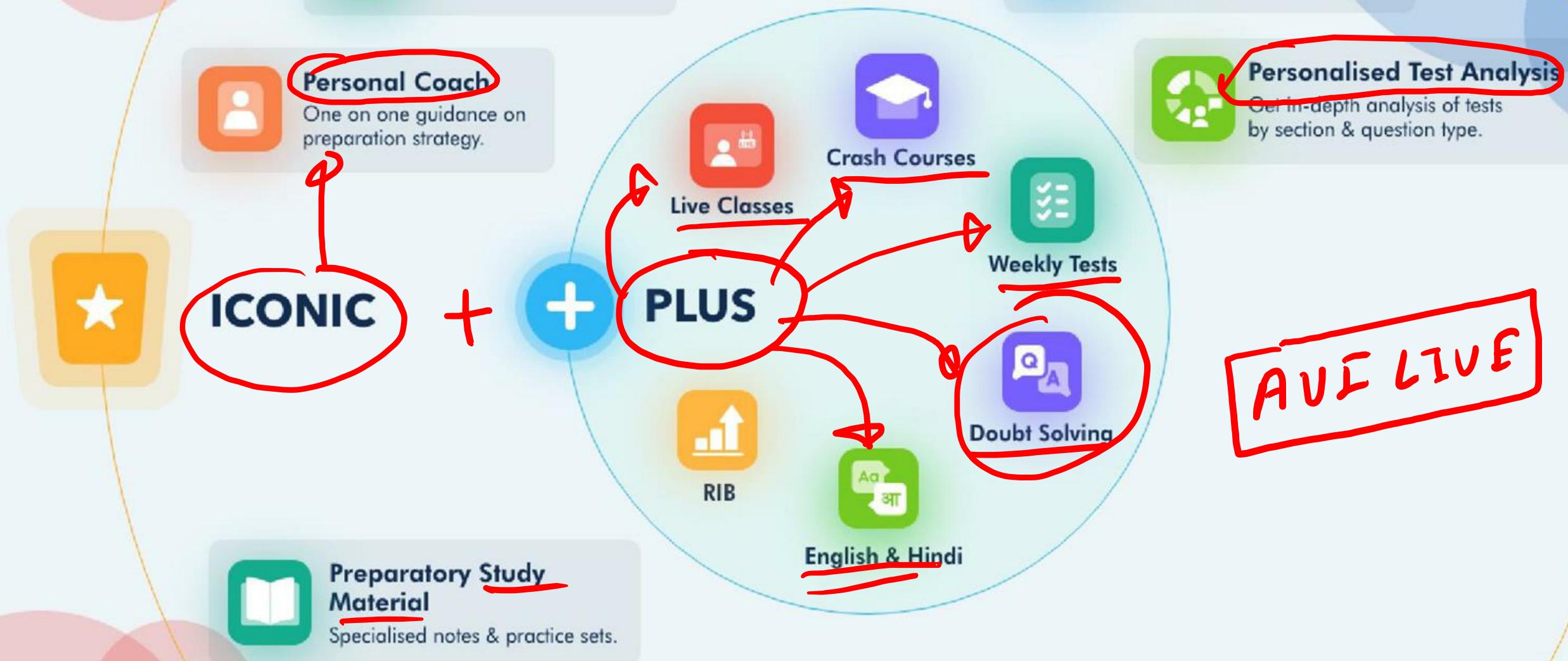
7+ Years Teaching Experience
Mentored 25k+ Students for
GATE, ESE & PSUs



Subjects Taken:

General Aptitude
Engineering Mathematics
Digital Electronics





**For Plus
Subscription
related
Query**

 8962944830

Use Code **AVINASH** to
Get Maximum Discount on
Unacademy Plus Subscription

Follow Avinash Sir on Social Media
 /AvinashSirMaths



Join Avinash Sir
Telegram Channel



**Avinash Sir
Maths**

**Unlock The
FREE PLAN
ON  unacademy
Learning App**

Use Coupon
Code **AVINASH**



Plus Batches Taken by Top Educators



Civil Engg



Doubt Clearing Batch for GATE 2021
(Civil)

Started on Oct 19

Anirudh Singh Rathore and 2 more



Spark ESE Prelims 2021 (Civil) -
Batch A (English)

Started on Nov 20

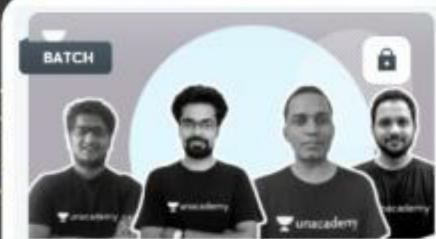
Praveen Kulkarni and 2 more



Target ESE Prelims 2021 (Civil) -
Batch C

Starts on Dec 7

Anirudh Singh Rathore



GATE Rank Improvement Batch
(Civil) 2021 - Part II

Started on Jul 1

Chetan Saxena and 3 more



GATE Rank Improvement Batch
(Civil) 2021 - Part I

Started on Jun 15

Chetan Saxena and 2 more

Complete Package To CRACK GATE/ESE

The image displays a grid of 15 educational modules for GATE/ESE preparation, arranged in three rows and five columns. Each module is represented by a colored box with a title, a small video thumbnail showing a teacher, and the teacher's name.

- FLUID MECHANICS** (Top Left, Blue): Mrigank Sir
- STRENGTH OF MATERIALS** (Top Middle, Yellow): Abhishek Sir
- DESIGN OF STEEL STRUCTURE** (Top Right, Brown): Babul Sir
- GEOTECHNICAL ENGINEERING** (Second Row, Left, Orange): Abhishek Sir
- REINFORCED CEMENT CONCRETE (RCC)** (Second Row, Middle, Purple): Aishwary Sir
- RCC** (Second Row, Right, Dark Blue): Kshitij Sir
- OPEN FLOW CHANNEL** (Second Row, Far Right, Light Blue): Mrigank Saurav Sir
- IRRIGATION ENGINEERING** (Third Row, Left, Green): Chetan Sir
- STRUCTURAL ANALYSIS** (Third Row, Middle, Yellow): Aishwary Sir
- SURVEYING** (Third Row, Right, Light Blue): Kshitij Sachan Sir
- GEOTECHNICAL ENGINEERING** (Bottom Left, Blue): Aishwary Sir
- ENVIRONMENTAL ENGG** (Bottom Middle, Red): Mrigank Saurav Sir
- ENGINEERING HYDROLOGY** (Bottom Middle, Green): Chetan Sir
- HIGHWAY ENGINEERING** (Bottom Right, Dark Blue): Kshitij Sachan Sir





UNACADEMY COMBAT

- India's Largest Fortnightly Competition for GATE
- Challenging GATE questions created by Best Educators
- Super fast and fun with real time rankings
- Compete with the best
- Detailed video solutions by Top Educators

Enroll for FREE!
December 13 | 12 PM

Register Now

13 Dec 12 PM
WIN EXCITING PRIZES!



Apple MacBook Air



Apple Airpods



Apple iPad Mini



Rs 1000 Amazon vouchers

COMPETE. CRACK. CONQUER.

~~Analytical Aptitude~~

- Venn Diagram
- Syllogism
- Series
- Coding & Decoding
- Clock & Calendar
- Distance & Direction
- Blood Relation
- Seating Arrangements
- Puzzle

FREE

~~Quantitative Aptitude~~

- Time & Work
- Pipes & Cisterns
- Ratio & Proportion
- Number System
- Sequence & Series
- Average
- Time, Speed & Distance
- Percentage
- Profit, Loss & Discount
- Allegation & Mixture
- Powers, exponents and logarithms
- Algebra
- Permutation & Combination
- Probability
- Data Interpretation
- Mensuration and geometry

~~Spatial Aptitude~~

- Shape Matching - Two Dimensional
- Visual Comparison – Two Dimensional
- Group Rotation – Two Dimensional
- Combining Two Dimensional Shapes
- Cube Views in Three Dimensions
- Cubes in Two and Three Dimensions
- Other Solids in Two and Three Dimensions
- Block Counting in Three Dimensions
- Two-Dimensional Mirror Reflections
- Paper folding and Cutting

**Use code AVILIVE
to get Maximum
discount on
Unacademy
Plus Subscription**



Home Work Question

Due to increase in the price of sugar by 30% a man can buy 6 kg less for ₹520,
then find the original price per kg in ₹?

- A) 21
- B) 20**
- C) 22
- D) NOTA

$$\text{Price} \times \text{Consumption} = \text{Expenditure}$$

$\frac{3}{10}x = 3 \times 1.9$ (Original Price)

$\frac{x}{26 \text{ kg}} \times (x - 6) \text{ kg} = \frac{3}{10+3} = \frac{3}{13} \text{ of } \frac{520}{26} = 20$

$$x - \frac{3}{13}x = x - 6 \Rightarrow x = 26 \text{ kg}$$

USE CODE

AVILIVETO GET
MAX DISCOUNT ON

plus
Subscription

$$A \times B = C = \text{constant}$$

Diagram illustrating the relationship between variables A , B , and C (constant) across four regions defined by the signs of x and $x+1$.

The regions are:

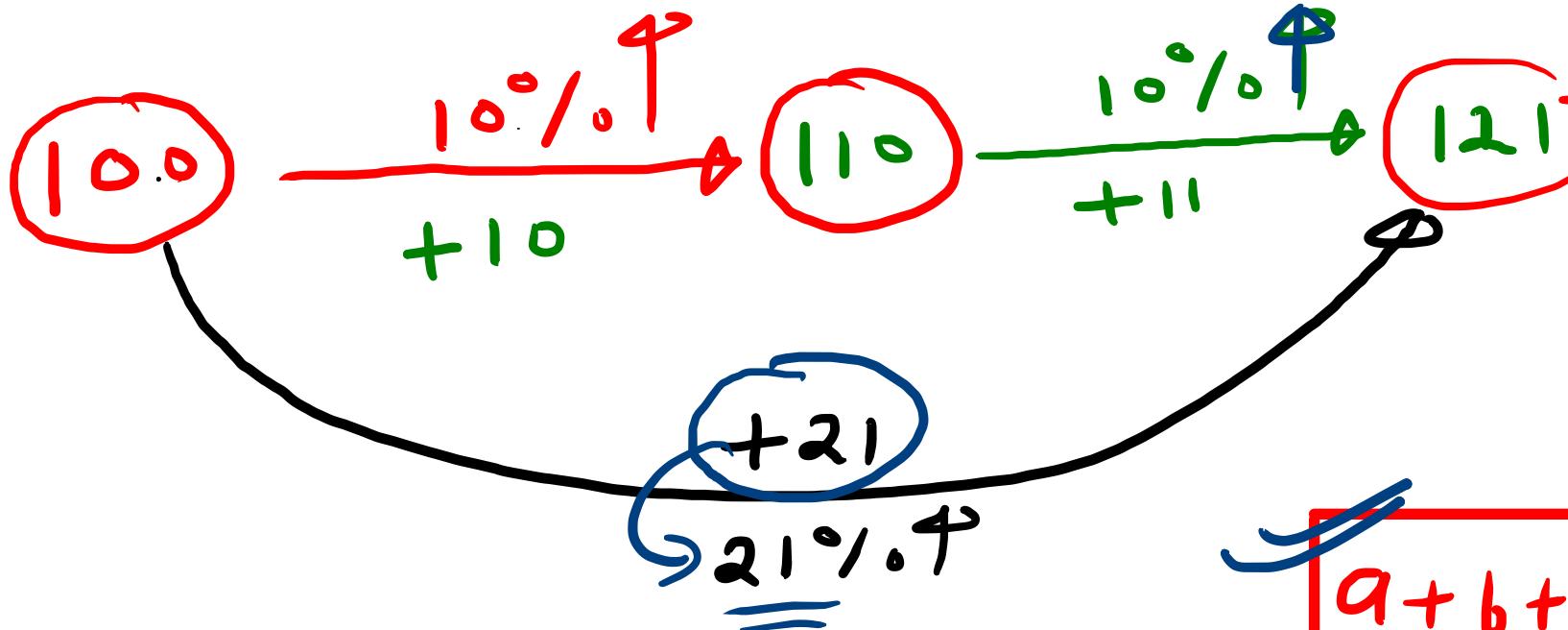
- Region 1 ($x < 0$): $\frac{1}{x} > 0$
- Region 2 ($0 < x < -1$): $\frac{1}{x} < 0, \frac{1}{x+1} < 0$
- Region 3 ($-1 < x < 0$): $\frac{1}{x+1} > 0, \frac{1}{x-1} < 0$
- Region 4 ($x > 0$): $\frac{1}{x} > 0, \frac{1}{x+1} > 0, \frac{1}{x-1} > 0$

Red annotations show the values of $\frac{1}{x}$ and $\frac{1}{x+1}$ in each region, and green arrows indicate the sign transitions between regions.

Today's Class Agenda

- Consecutive or Successive Percentage Change
- Detail about $A \times B = C$ → CASE I ✓
→ CASE II ✓

Consecutive or Successive Percentage Change



$$a = +10\% \quad b = +10\%$$

$$10 + 10 + \frac{10 \times 10}{100} = 10 + 10 + 1 = \underline{\underline{21\%}}$$

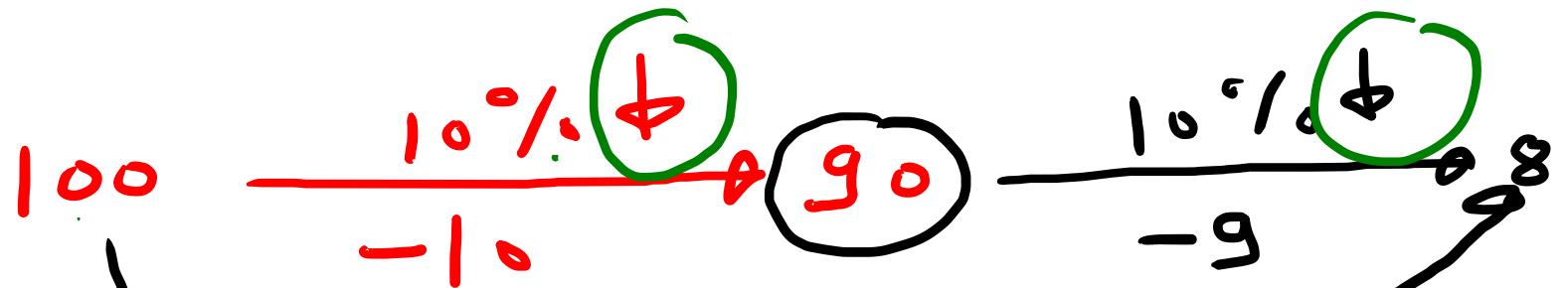
USE CODE

AVILIVE

TO GET
MAX DISCOUNT ON

plus
Subscription

Consecutive or Successive Percentage Change



$$a + b + \frac{ab}{100}$$

$$a = -10\% \quad b = -10\%$$

$$-10 - 10 + \frac{(-10)(-10)}{100} = -20 + 1 = -19$$

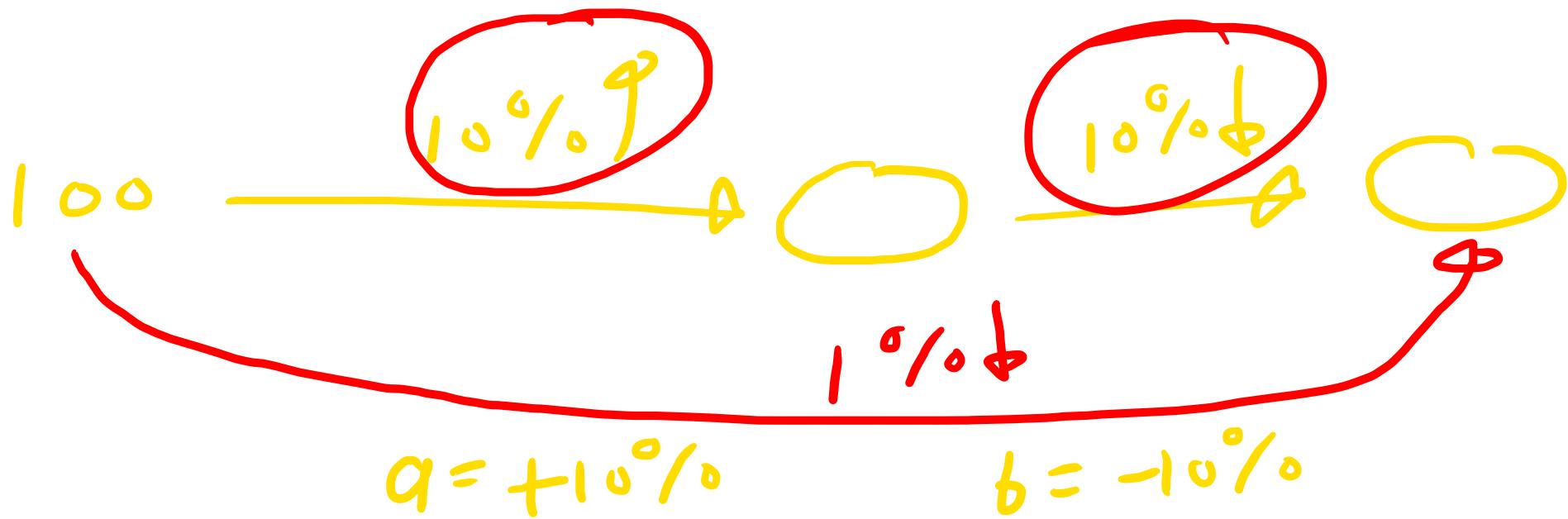
19%
-19%

USE CODE

AVILIVE

TO GET
MAX DISCOUNT ON

plus
Subscription



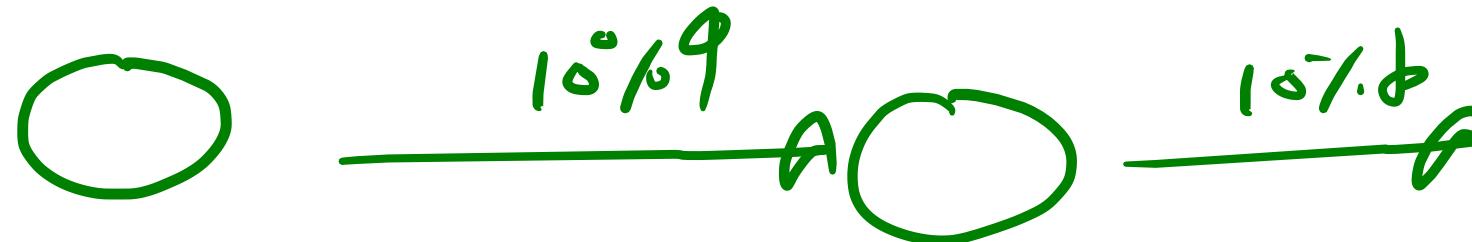
$$a + b + \frac{ab}{r\omega} \Rightarrow \sqrt{-16 + \frac{(-10)(10)}{100}}$$

-10%

$1\% \downarrow$



- 1) A number is increased by 10% and then it is decreased by 10%. The net change in the number is
- A) no increase or decrease B) 2% decrease C) 1 % increase D) 1% decrease



$$\begin{aligned} & +10\% + \frac{10\%(-10\%)}{100} \\ & = +1\% \end{aligned}$$

USE CODE

AVILIVE

TO GET
MAX DISCOUNT ONplus
Subscription



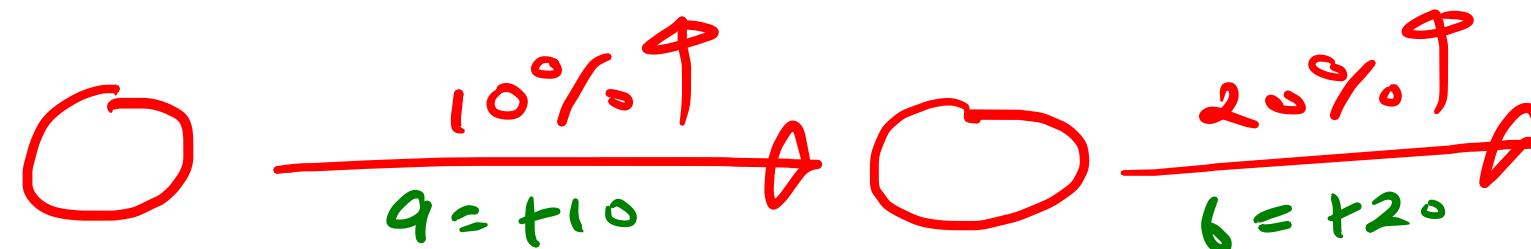
2) A number is first increased by 10% and then it is further increased by 20%. The original number is increased altogether by

A) 30%

B) 15%

C) 32%

D) 36%

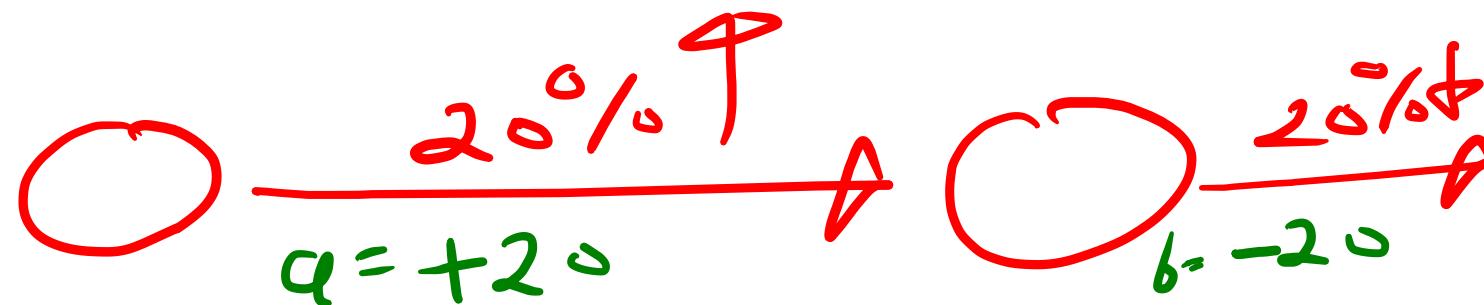


$$a + b + \frac{ab}{100} = 10 + 20 + \frac{10 \times 20}{100} = 32\%$$



3) Salary of a person is first increased by 20%, then it is decreased by 20%. Percentage change in his salary is:

- A) 4% decrease
- B) 4% increased
- C) 8% decrease
- D) 20% increased



$$\frac{+20 - 20 + \frac{20 \times (-20)}{100}}{-40} \rightarrow 4\%$$

USE CODE

AVILIVE

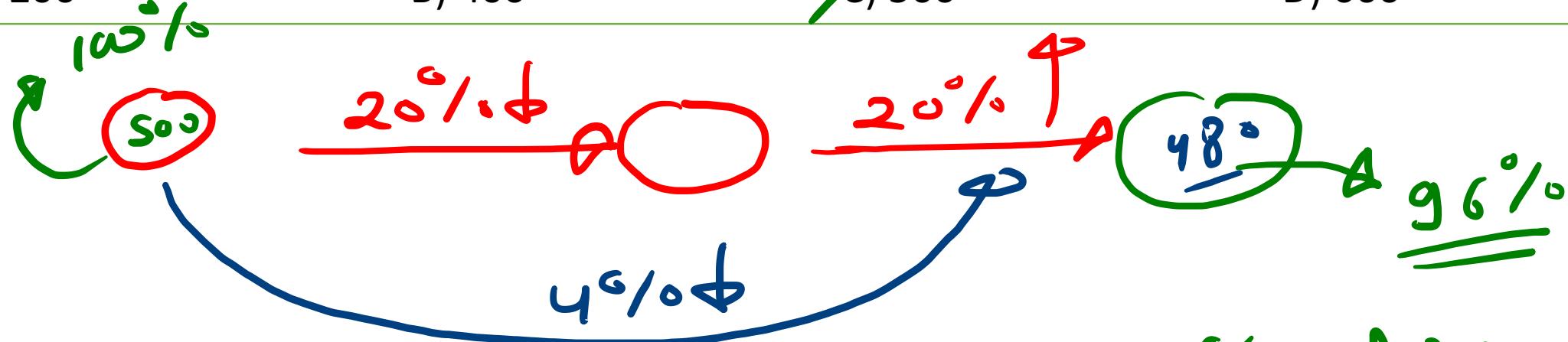
TO GET

MAX DISCOUNT ON

 plus
Subscription



- 4) A number is first decreased by 20%. The decreased number is then increased by 20%. The resulting number is less than the original number by 20. Then the original number is
- A) 200 B) 400 C) 500 D) 600



$$a + b + \frac{ab}{100}$$

$$-20 + 20 + \frac{20(-20)}{100} \\ -4\% = 4\%$$

$$4\% + 20$$

$$1\% + 5$$

$$100\% \rightarrow 500$$

USE CODE

AVILIVETO GET
MAX DISCOUNT ON

plus
Subscription

SQ + 1 M
SQ + 2 M
10 Q + 15 M
GATE

Let's Crack it

FREE LIVE TEST

on Unacademy Learning App

(Strictly Related to NEW GATE Syllabus)

BY AVINASH SIR

9 Dec, 2020
5 PM • Test-6

Topic

- Time & Work,
- Pipe & Cistern
- Ratio &
- Proportion

This test will evaluate your performance and provide you a real-life competitive environment

Enroll Now, Link

To subscribe Unacademy Pluse use code "AVINASH"

Unlock The
FREE PLAN
ON  unacademy
Learning App
Use Coupon
Code **AVINASH**



Avinash Sir

**For Plus
Subscription
related
Query**

 8962944830

Use Code **AVINASH** to
Get Maximum Discount on
Unacademy Plus Subscription

Follow Avinash Sir on Social Media
 /AvinashSirMaths



Join Avinash Sir
Telegram Channel



**Avinash Sir
Maths**

**Unlock The
FREE PLAN
ON  unacademy
Learning App**

Use Coupon
Code **AVINASH**



~~A × B = C~~

~~CASE-1~~

One Parameter is constant
and other two are variable

$$A =$$

$$B =$$

$$C =$$

CASE-2

All parameter are variable

$$A \times B = C$$

$$\varphi \quad \varphi \quad \varphi$$

$$\downarrow \quad \downarrow \quad \downarrow$$

$$\varphi \quad \downarrow \quad ?$$

USE CODE

AVILIVETO GET
MAX DISCOUNT ON
plus
Subscription

$$A \times B = C$$

CASE-2 All parameter are variable

$$\begin{array}{ccc}
 A & \times & B = C \\
 10\% & 10\% & \cancel{20\%} 21\% \\
 10\% & 10\% & \cancel{20\%} \downarrow 19\% \\
 10\% & 10\% & 9.1\%
 \end{array}$$

$$\frac{-10 - 10 + (-1)(-1)}{100}$$

$$-20 + 1 = -19.$$

$$19\%.$$

$$\frac{+16 - 16 + (1)(-1)}{100}$$

$$-1\%$$

A

X

B

= C

$$\frac{1}{10} = 10\% \quad (10)$$

$$X \quad (10)$$

$$\left. \begin{aligned} &= 100 \\ &\frac{1}{10} = 10\% \\ &= 121 \end{aligned} \right) \quad \underline{\underline{21\%}}$$

Consecutive change

$$10 + 10 + \frac{10 \times 10}{100} = 21\% \quad \underline{\underline{}}$$

$$\left(\begin{array}{c} A \\ 10\% \\ 20\% \\ 15\% \\ 10\% \end{array} \right) \times \left(\begin{array}{c} B \\ 10\% \\ 20\% \\ 15\% \\ 10\% \end{array} \right) = \left(\begin{array}{c} C \\ 21\% \\ 44\% \\ 19\% \\ 10\% \end{array} \right)$$

$$a+b+\frac{ab}{100}$$

$$A \times B = C$$

CASE-2 All parameter are variable

USE CODE

AVILIVE

TO GET

MAX DISCOUNT ON

 plus
Subscription



5) Length and width of a rectangle are increased by 20% and 30% respectively. What will be the percentage change in area?

A) 50

B) 10

C) 56

D) NOTA

USE CODE

AVILIVE

TO GET

MAX DISCOUNT ON

 **plus**
Subscription



5) Length and width of a rectangle are increased by 20% and 30% respectively. What will be the percentage change in area?

A) 50

B) 10

C) 56

D) NOTA

~~A~~ ~~B~~ ~~C~~ ✓ ~~=~~

Length ~~×~~ Width = Area

~~20%^o~~

~~30%^o~~

$$\begin{aligned} &+20 + 30 + \frac{20 \times 30}{100} \\ &= 50 + 6 = \underline{\underline{56\%}} \end{aligned}$$

USE CODE

AVILIVE

TO GET

MAX DISCOUNT ON


plus
Subscription



- 6) Due to increase in the price of sugar by 20%, the consumption reduces by 30%. Then find the percentage effect on total expenditure from it?
- A) 10% decrease B) 10% increase C) 16% decrease D) 16% increase

USE CODE

AVILIVE

TO GET

MAX DISCOUNT ON

 plus
Subscription



- 6) Due to increase in the price of sugar by 20%, the consumption reduces by 30%. Then find the percentage effect on total expenditure from it?
- A) 10% decrease B) 10% increase C) 16% decrease D) 16% increase

$$A \times B = C$$

(Price) \times (Consumption/Quantity) = Expenditure

$$20\% \quad 30\%$$

$$+20 -30 + \frac{(-3)(2)}{100}$$

$$= -10 -6 = -16\%$$

16%

7) If side of a square is increased by 10% then the percentage change in its area will be?

A) 21%

B) 20%

C) 10%

D) NOTA

$$\text{Area} = a^2 = a \times a$$

$$\text{Area} = a \times a$$

21.1.%

101.1.%
10.1.%

$$a + b + \frac{ab}{100}$$

USE CODE

AVILIVE

TO GET

MAX DISCOUNT ON

 **plus**
Subscription



- Q) If the radius of a circle is increased by 20%, the area of the circle will be increased by
- A) 30%
 - B) 40%
 - C) 44%
 - D) NOTA

$$\text{Area} = \pi r^2$$

$$\text{Area} \propto r \times r$$

40% 20% 20%
r r + 20% r

USE CODE

AVILIVE

TO GET

MAX DISCOUNT ON


plus
Subscription



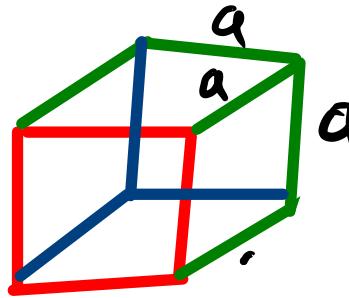
9) If side of a cube is increased by 10% then the percentage change in its volume will be?

A) 21%

B) 20%

C) 10%

D) NOTA



$$\text{Volume} = a^3$$

$$\text{Volume} = a \times a \times a$$

$$10\% \quad 10\% \quad 10\%$$

$$21\%$$

$$33.1\%$$

$$10 + 21 + \frac{10 \times 21}{100}$$

$$33.1\%$$

~~$a+1+a^2$~~
 ~~$a+a^2+a^3$~~

10%.9

10%.9

10%.4

21%

33.1%

10%.9 10%.9 10%.5

33.1%.9

~~XXXXX~~

10%.φ 10%.φ + 21%.φ

10%.φ 10%.φ → 19%.φ

20%.φ 20%.φ → 44%.φ

20%.φ 20%.φ → 36%.↓

20%.φ 20%.φ → 4%.↓

10%.φ 10%.φ → 1%.↓

10%.φ 10%.φ 10%.φ → 33%.%



- 10) The radius as well as the height of a circular cone increased by 10%. The percentage increase in its volume is _____. [GATE 2019]
- A) 17.1 B) 21.0 C) ~~33.1~~ D) 72.8

$$V = \frac{1}{3} \pi r^2 h$$

$$\cancel{\pi} \times \cancel{\pi} \times \cancel{h}$$

$$\begin{matrix} 10\% & 10\% & 10\% \\ \underbrace{\hspace{1cm}}_{21} & \underbrace{\hspace{1cm}}_{33.1\%} & \phi \end{matrix}$$

USE CODE

AVILIVE

TO GET

MAX DISCOUNT ON


plus
Subscription

Home Work Question

11851

The price of an articles is first decreased by 20% and then increased by 30%. If the resulting price is ₹ 416, the original price of the article is

- A) ₹ 350
- B) ₹ 405
- C) ₹ 400
- D) ₹ 450

Let's Crack it

FREE LIVE TEST

on Unacademy Learning App

(Strictly Related to NEW GATE Syllabus)

BY AVINASH SIR



9 Dec, 2020

5 PM • Test-6

Topic

Time & Work,
Pipe & Cistern
Ratio &
Proportion

This test will evaluate your performance
and provide you a real-life competitive
environment

Enroll Now, Link



Unlock The
FREE PLAN
ON  unacademy
Learning App
Use Coupon
Code
AVINASH



Avinash Sir

To subscribe Unacademy Please use code "AVINASH"

Follow Me on



unacademy

AVILIVE

<https://unacademy.com/@unacademy-user-LKWBX7PD3KPG>

USE CODE

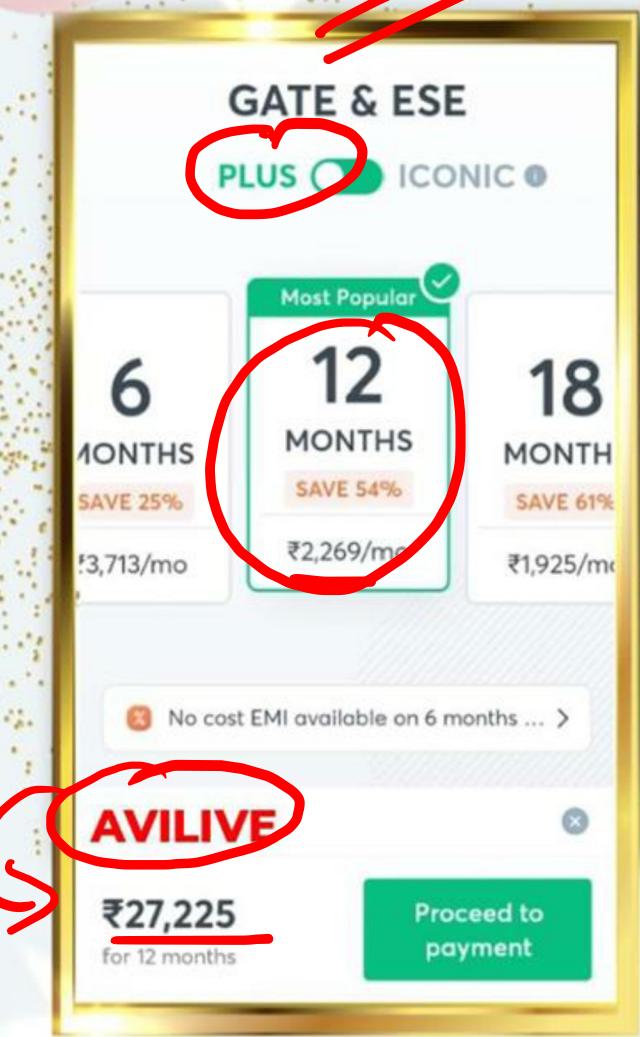
AVILIVE

TO GET

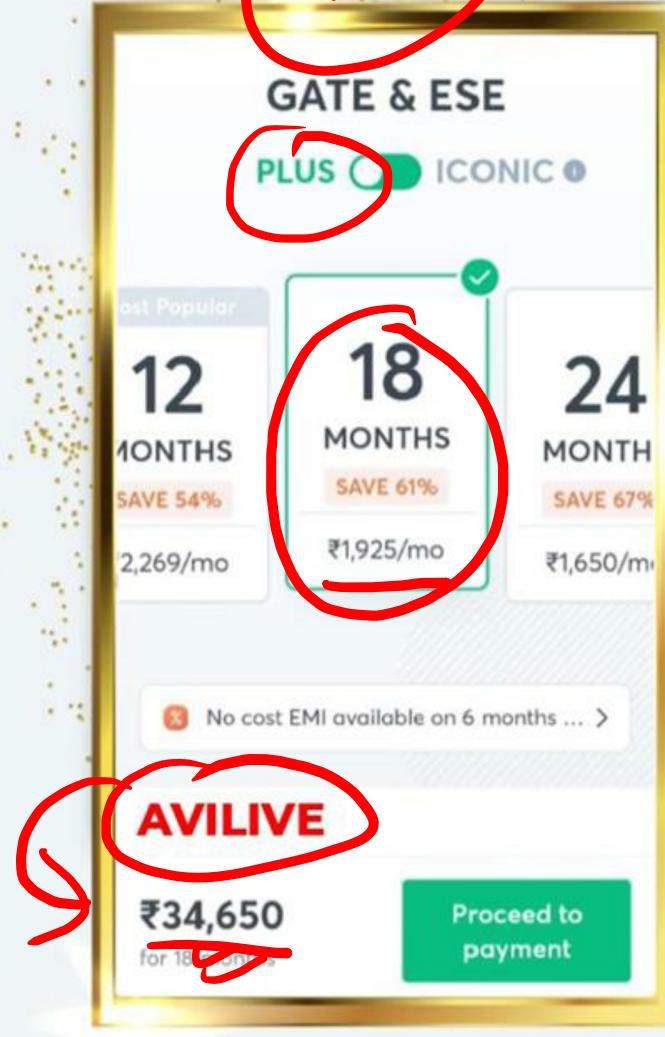
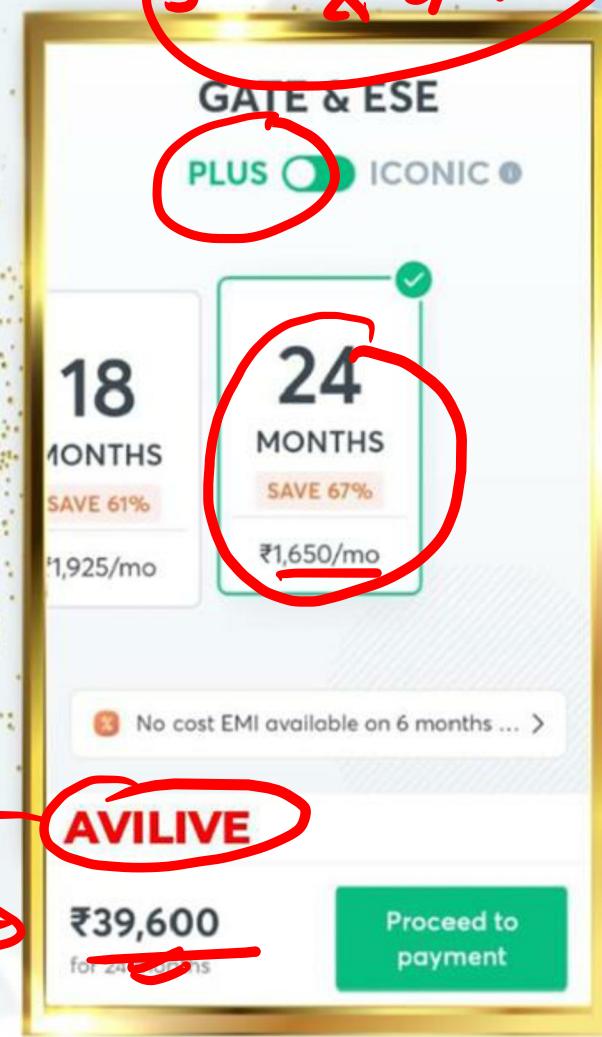
MAX DISCOUNT ON

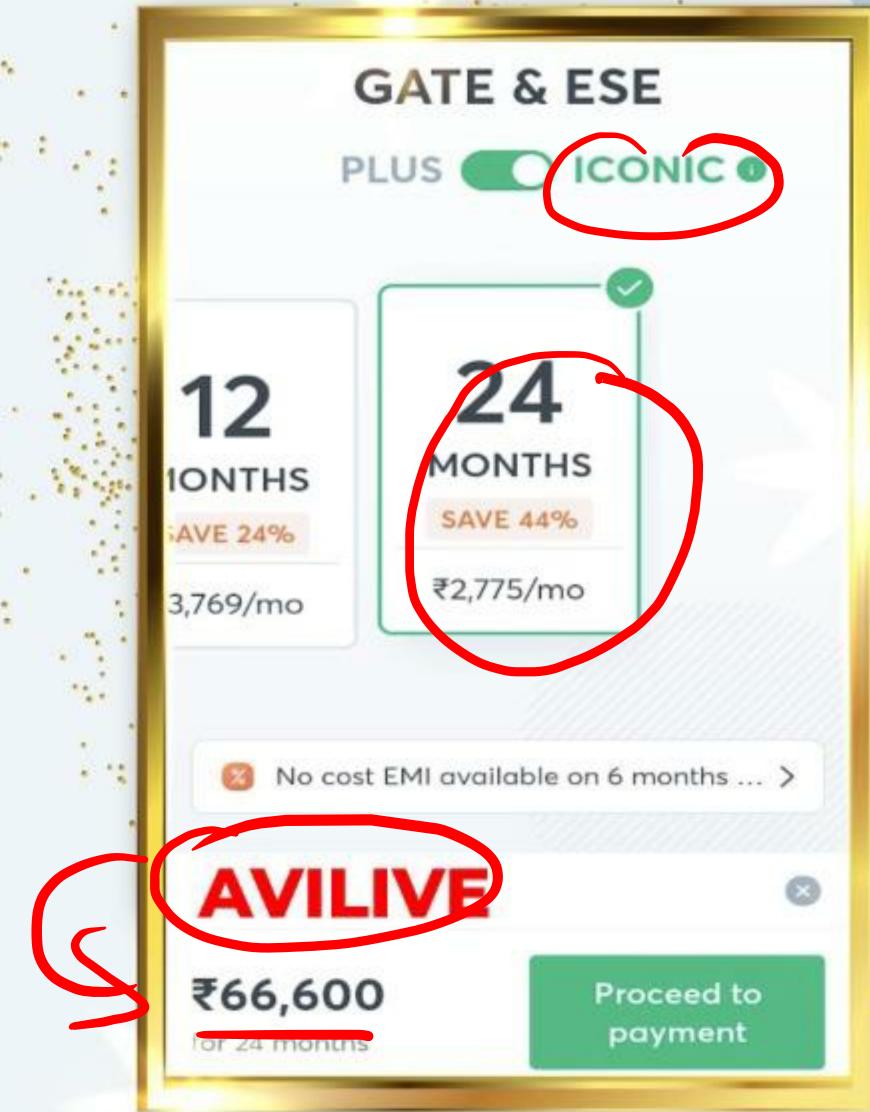
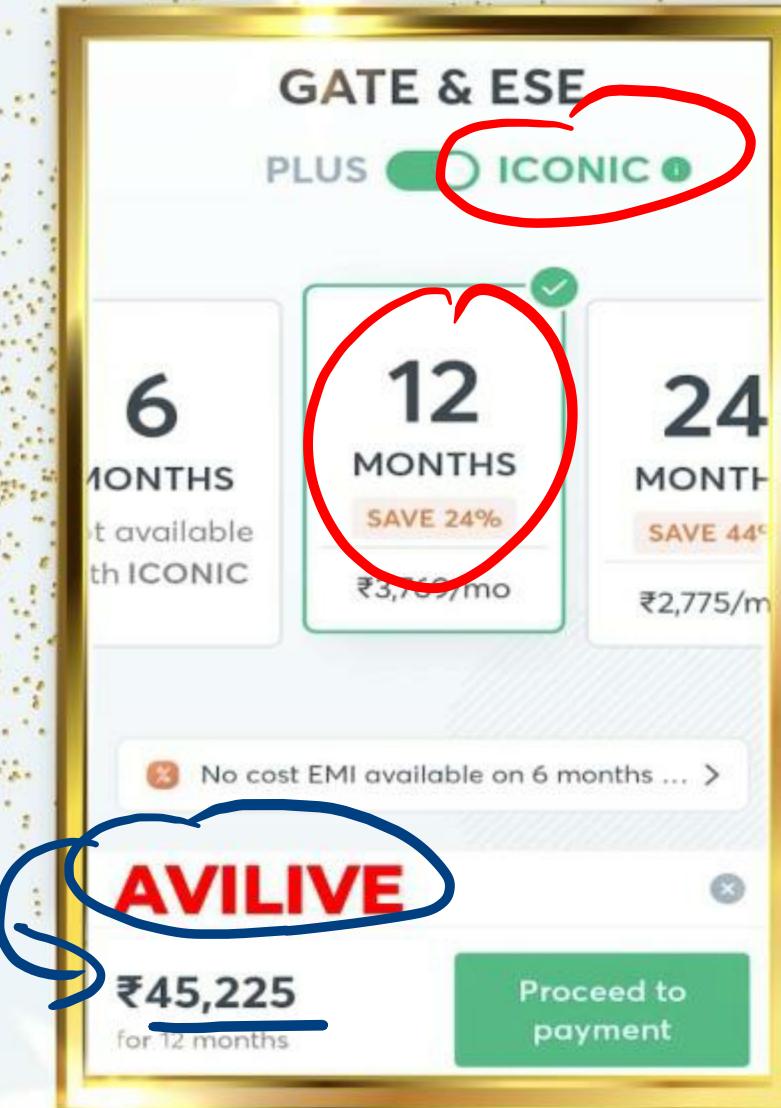
 **plus**
Subscription

P6.



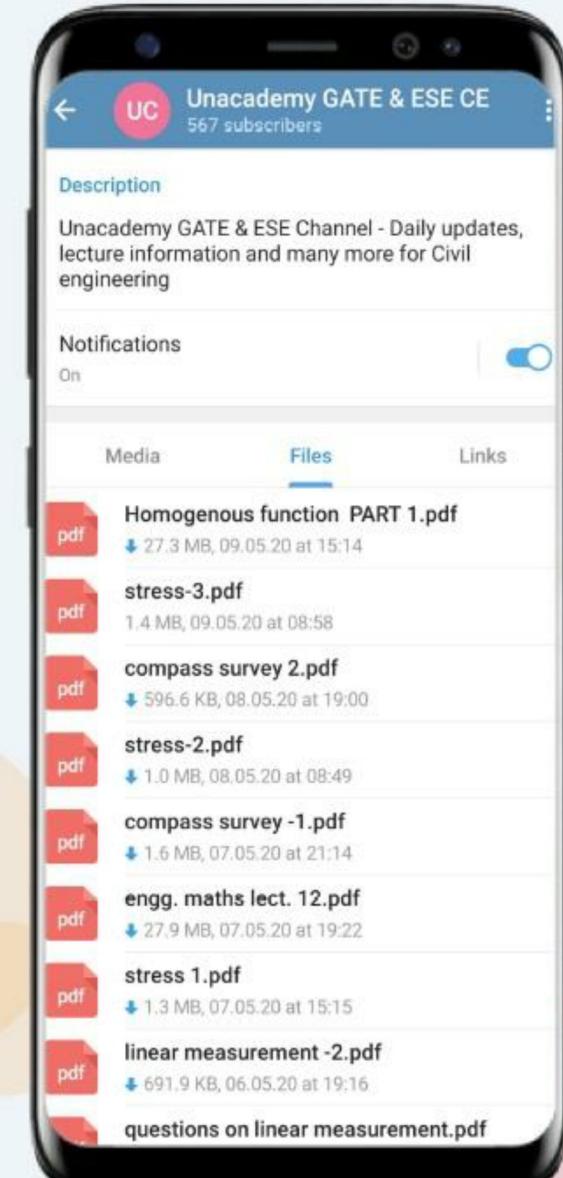
424

3rd & 4th





<https://t.me/unacademygatece>



USE CODE

AVILIVE

TO GET
MAX DISCOUNT ON plus
Subscription

India's No. 1 Study Channels

Kreatryx GATE
EE,ECE,IN



Unacademy GATE
ME,PI,XE



Unacademy
GATE CE



Unacademy
GATE Telugu



Unacademy
SSC JE



Unacademy
Computer Science



Unacademy GATE
Questions



Electrical
Junction



Engineering
Pathshala



GS Terminal -
RRB, SSC



USE CODE

AVILIVE

TO GET

MAX DISCOUNT ON



plus
Subscription

Thank You



 SUBSCRIBE



USE CODE

AVILIVE

TO GET

MAX DISCOUNT ON

 **plus**
Subscription

**For Plus
Subscription
related
Query**

 8962944830

Use Code **AVINASH** to
Get Maximum Discount on
Unacademy Plus Subscription

Follow Avinash Sir on Social Media
 /AvinashSirMaths



Join Avinash Sir
Telegram Channel



**Avinash Sir
Maths**

**Unlock The
FREE PLAN
ON  unacademy
Learning App**

Use Coupon
Code **AVINASH**

