Gajendra Purohit

Legend in CSIR-UGC NET & IIT-JAM

~ Unlock Code : GPSIR ~ PhD, CSIR NET (Maths) | Youtuber(800K+165K Sub.)/Dr.Gajendra Purohit (Maths), 17+ Yr. Experience, Author

50M Watch mins | 3M Watch mins (last 30 days) | 44K Followers | 2K Dedications

TOP EDUCATOR ON UNACADEMY
FOR CSIR NET & IIT JAM

YouTuber with 800K Subscribers

AUTHOR OF BEST SELLER BOOK
FOR CSIR NET & IIT JAM

Get 10% Off

Referral Code : GP SIR

unacademy Accelerate

Save up to 43%*

on your **CSIR UGC NET** Subscription
with free extension of up to 6 months

Valid only till **August 12, 11:59 PM!**

	Duration	Current Price	Total Value	What you pay	What you Save
Plus	24 months + 6 months	₹ 23,100	~~₹ 36,498~~	₹ 20,790	₹15,708 (43%)
	12 months + 3 months	₹ 16,748	~~₹ 23,967~~	₹ 15,073	₹8,894 (37%)
	6 Months + 1 Month	₹ 13,398	~~₹ 15,804~~	₹ 12,058	₹3,746 (24%)
Iconic	24 months + 6 months	₹ 52,975	~~₹ 74,515~~	₹ 47,678	₹26,838 (36%)
	12 months + 3 months	₹ 30,780	~~₹ 41,550~~	₹ 27,702	₹13,848 (33%)
	6 Months + 1 Month	₹ 21,540	~~₹ 25,130~~	₹ 19,386	₹5,744 (23%)

Subscribe Now Use code

*T&C apply, as available on the platform.

unacademy Accelerate

Save up to 43%*

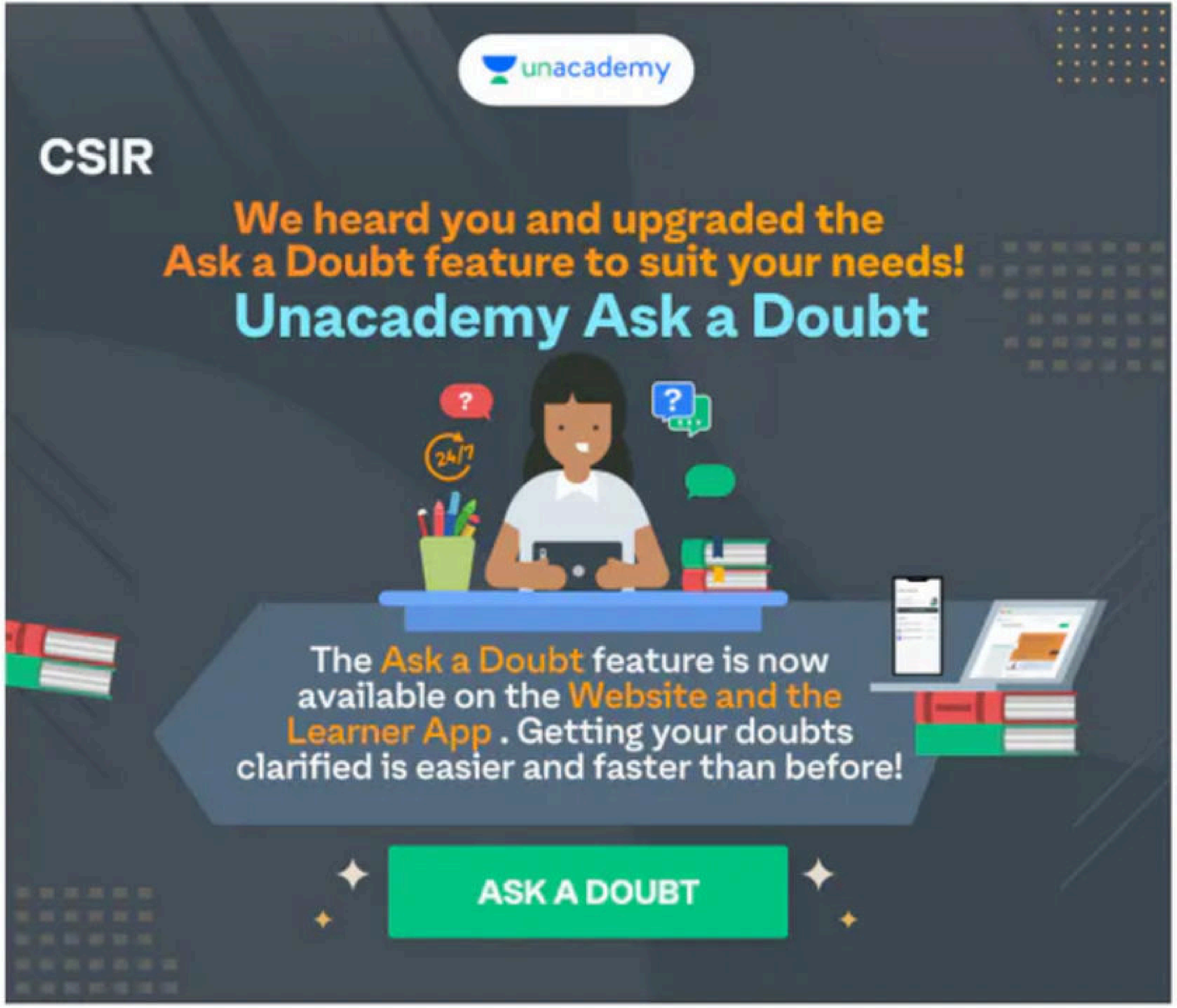
on your IIT JAM Subscription
with free extension of up to 6 months

Valid only till **August 12, 11:59 PM!**

	Duration	Current Price	Total Value	What you pay	What you Save
Plus	24 months + 6 months	₹ 23,100	~~₹ 36,498~~	₹ 20,790	₹15,708 (43%)
	12 months + 3 months	₹ 16,748	~~₹ 23,967~~	₹ 15,073	₹8,894 (37%)
	6 Months + 1 Month	₹ 13,398	~~₹ 15,804~~	₹ 12,058	₹3,746 (24%)
Iconic	24 months + 6 months	₹ 52,975	~~₹ 74,515~~	₹ 47,678	₹26,838 (36%)
	12 months + 3 months	₹ 30,780	~~₹ 41,550~~	₹ 27,702	₹13,848 (33%)
	6 Months + 1 Month	₹ 21,540	~~₹ 25,130~~	₹ 19,386	₹5,744 (23%)

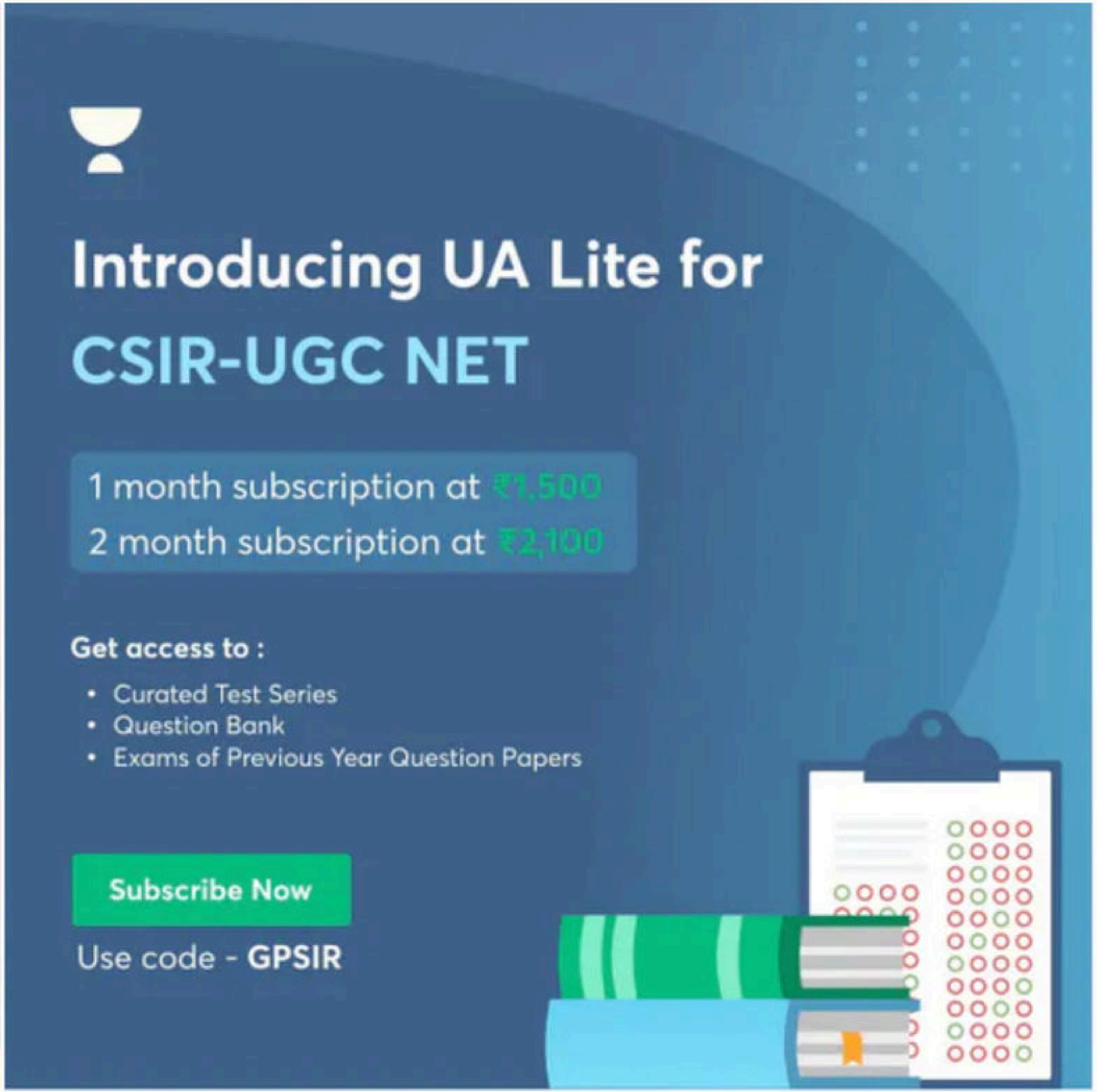
Subscribe Now Use code

*T&C apply, as available on the platform.


unacademy
CSIR
We heard you and upgraded the
Ask a Doubt feature to suit your needs!
Unacademy Ask a Doubt
24/7
The Ask a Doubt feature is now available on the Website and the Learner App . Getting your doubts clarified is easier and faster than before!
ASK A DOUBT


unacademy
RANK BOOSTER COURSE UNIT 3
CSIR NET 2022
1st AUGUST
Gajendra Purohit
USE CODE
GPSIR
FOR 10% OFF
Enroll Now
unacademy


unacademy
DETAILED COURSE 2.0
DIFFERENTIAL EQUATION
4th AUGUST
Gajendra Purohit
Enroll Now
USE CODE
GPSIR
FOR 10% OFF
unacademy


Introducing UA Lite for
CSIR-UGC NET
1 month subscription at ₹1,500
2 month subscription at ₹2,100
Get access to :
• Curated Test Series
• Question Bank
• Exams of Previous Year Question Papers
Subscribe Now
Use code - GPSIR

FEE DETAILS FOR IIT JAM SUBSCRIPTION

No cost EMI available on 6 months & above subscription plans

24 months	Save 67%	₹ 908 / mo	Total ₹ 21,780
You get 6 months extra for free		Offer expires 15 Jun 2022	
12 months	Save 54%	₹ 1,248 / mo	Total ₹ 14,974
You get 6 months extra for free		Offer expires 15 Jun 2022	
9 months	Save 45%	₹ 1,497 / mo	Total ₹ 13,475
6 months	Save 25%	₹ 2,042 / mo	Total ₹ 12,252
3 months	Save 17%	₹ 2,269 / mo	Total ₹ 6,807
1 month		₹ 2,723 / mo	Total ₹ 2,723

To be paid as a one-time payment

Have a referral code? Proceed to pay

Get 10% Off

After Using My Referral Code

No cost EMI available on 6 months & above subscription plans

24 months	Save 67%	₹ 817 / mo	₹ ~~21,780~~ ₹ 19,602
You get 6 months extra for free		Offer expires 15 Jun 2022	
12 months	Save 54%	₹ 1,123 / mo	₹ ~~14,974~~ ₹ 13,477
You get 6 months extra for free		Offer expires 15 Jun 2022	
9 months	Save 45%	₹ 1,348 / mo	₹ ~~13,475~~ ₹ 12,128
6 months	Save 25%	₹ 1,838 / mo	₹ ~~12,252~~ ₹ 11,027
3 months	Save 17%	₹ 2,042 / mo	₹ ~~6,807~~ ₹ 6,126

GPSIR

Awesome! You get 10% off

Proceed to pay

LINEAR DIFFERENTIAL EQUATION

A first order differential equation is called linear if it can be written in the form $\left(\frac{dy}{dx}\right)+py=Q$,

Where p & Q are constant or function of x alone.

Working rule for solution of LDE

(1) I.F. (Integrating factor)

$$IF=e^{\int Pdx}$$

(2) $IF.y=\int IF.Qdx+C$

Solve this and get required solution.

Note : Consider the first order and first degree linear differential equation $\frac{dy}{dx} + P(x)y = Q(x)$

(1) If P(x) & Q(x) are continuous and bounded for all $\alpha, \beta \in R$ then $\exists$ unique solution such that $u(\alpha) = \beta$.

Q.1. Let $\frac{dy}{dx}+\left(\frac{2x+1}{x}\right)y=e^{-2x}$; x > 0, then the solution y(x) of DE is

(a) $y(x) \to 0$ as $x \to \infty$ (b) $y(x) \to \infty$ as $x \to \infty$

(c) $y(x) \to -\infty$ as $x \to \infty$ (d) None of these

Q.2. $\frac{dy}{dx}+2xy=e^{-x^2}$, then the general solution of the DE is

(a) y(x) is bounded on R

(b) y(x) is bounded on R^+

(c) $y(x) \to 0$ as $x \to \infty$

(d) $y(x) \to 0$ as $x \to \infty$

Q.3. Solve $\frac{dy}{dx} + y = f(x)$ where $f(x) = \begin{cases} 1 & 0 \le x \le 1 \\ 0 & x > 1 \end{cases}$ s.t.

y(0) = 0.

TARGETED AUDIENCE

- IIT-JAM
- M.Sc. Entrance Exam

COMPLETE COURSE ON
MATHEMATICS
FOR IIT-JAM 2022

TOPICS TO BE COVERED

- REAL ANALYSIS
- FUNCTION OF ONE & TWO VARIABLE
- LINAER ALGEBRA
- MODERN ALGEBRA

TOPICS TO BE COVERED

- SEQUENCE & SERIES
- INTEGRAL CALCULUS
- VECTOR CALCULUS
- DIFFERENTIAL EQUATION

FEE DETAILS FOR IIT JAM SUBSCRIPTION

No cost EMI available on 6 months & above subscription plans

24 months Save 67%	₹ 908 / mo Total ₹ 21,780
You get 6 months extra for free	Offer expires 15 Jun 2022
12 months Save 54%	₹ 1,248 / mo Total ₹ 14,974
You get 6 months extra for free	Offer expires 15 Jun 2022
9 months Save 45%	₹ 1,497 / mo Total ₹ 13,475
6 months Save 25%	₹ 2,042 / mo Total ₹ 12,252
3 months Save 17%	₹ 2,269 / mo Total ₹ 6,807
1 month	₹ 2,723 / mo Total ₹ 2,723

To be paid as a one-time payment

Have a referral code?

Proceed to pay

Get 10% Off

After Using My Referral Code

No cost EMI available on 6 months & above subscription plans

24 months Save 67%	₹ 817 / mo ₹ ~~21,700~~ ₹ 19,602
You get 6 months extra for free	Offer expires 15 Jun 2022
12 months Save 54%	₹ 1,123 / mo ₹ ~~14,974~~ ₹ 13,477
You get 6 months extra for free	Offer expires 15 Jun 2022
9 months Save 45%	₹ 1,348 / mo ₹ ~~13,475~~ ₹ 12,128
6 months Save 25%	₹ 1,838 / mo ₹ ~~12,252~~ ₹ 11,027
3 months Save 17%	₹ 2,042 / mo ₹ ~~6,807~~ ₹ 6,126

GPSIR

Awesome! You get 10% off

Proceed to pay

FOUNDATION COURSE OF
MATHEMATICS
FOR CSIR-NET

Q.4. $\frac{dy}{dx} - ay = e^{ax}$; y(0) = 0; a ∈ R then

(a) If a > 0, y(x) → ∞ as x → ∞

(b) If a < 0; y(x) is bounded on R^+.

(c) If a < 0; y(x) → -∞ as x → -∞

(d) None of these

Q.5 The equation of the curve passing through the point $\left(\frac{\pi}{2},1\right)$ and having slope $\frac{\sin(x)}{x^2}-\frac{2y}{x}$ at each point (x, y) with $x \neq 0$ is

(a) $-x^2y+\cos(x)=\frac{-\pi^2}{4}$

(b) $x^2y+\cos(x)=\frac{\pi^2}{4}$

(c) $x^2y-\sin(x)-\frac{\pi^2}{4}-1$

(d) $x^2y+\sin(x)=\frac{\pi^2}{4}+1$

Bernoulli's equation :

An equation of the form $\frac{dy}{dx}+Py=Qy^n$, where P and Q are constant or function of x alone and n is constant except 0 and 1 is called Bernoulli's equation.

Working rule :

$$\frac{1}{y^n}\frac{dy}{dx}+Py^{1-n}=Q \qquad ....(1)$$

Suppose $\quad y^{1-n}=t$

$$(1-n)y^{-n}\frac{dy}{dx}=\frac{dt}{dx}$$

Put in (1)

$$\frac{1}{(1-n)}\frac{dt}{dx}+P(x)t=Q(x)$$

$$\frac{dt}{dx}+(1-n)P.t=(1-n)Q$$

Which is FOFD linear DE.

Q.6. Consider the ODE $ty' - 3y = t^2 y^{1/2}$, $y(1) = 1$. Find the value of $y(2)$

(a) 14 (b) 16

(c) 0 (d) 8

Q.7. Solution of the differential equation

$xy' + \sin 2y = x^3 \sin^2 y$ is

(a) $\cot y = -x^3 + c x^2$ (b) $2\cot y = x^3 + 2c x^2$

(b) $\tan y = -x^3 + c x^2$ (d) $2\tan y = x^3 + 2c x^2$

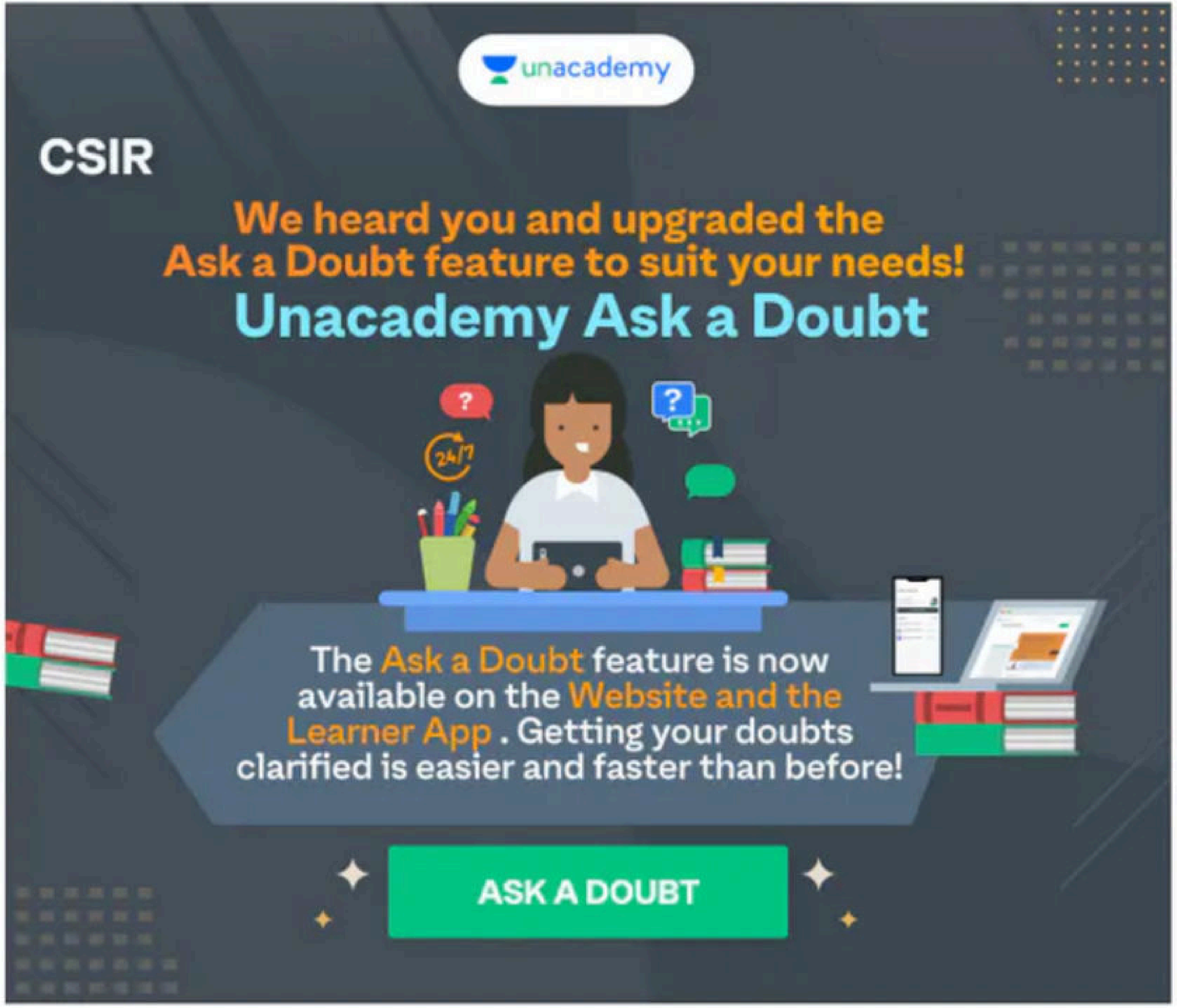
Q.8. The general solution of differential equation $\frac{dy}{dx}=\left(1+y^2\right)\left(e^{-x^2}-2x\tan^{-1}y\right)$ is

(a) $e^{x^2}\tan^{-1}y=x+c$

(b) $e^{-x^2}\tan y=x+c$

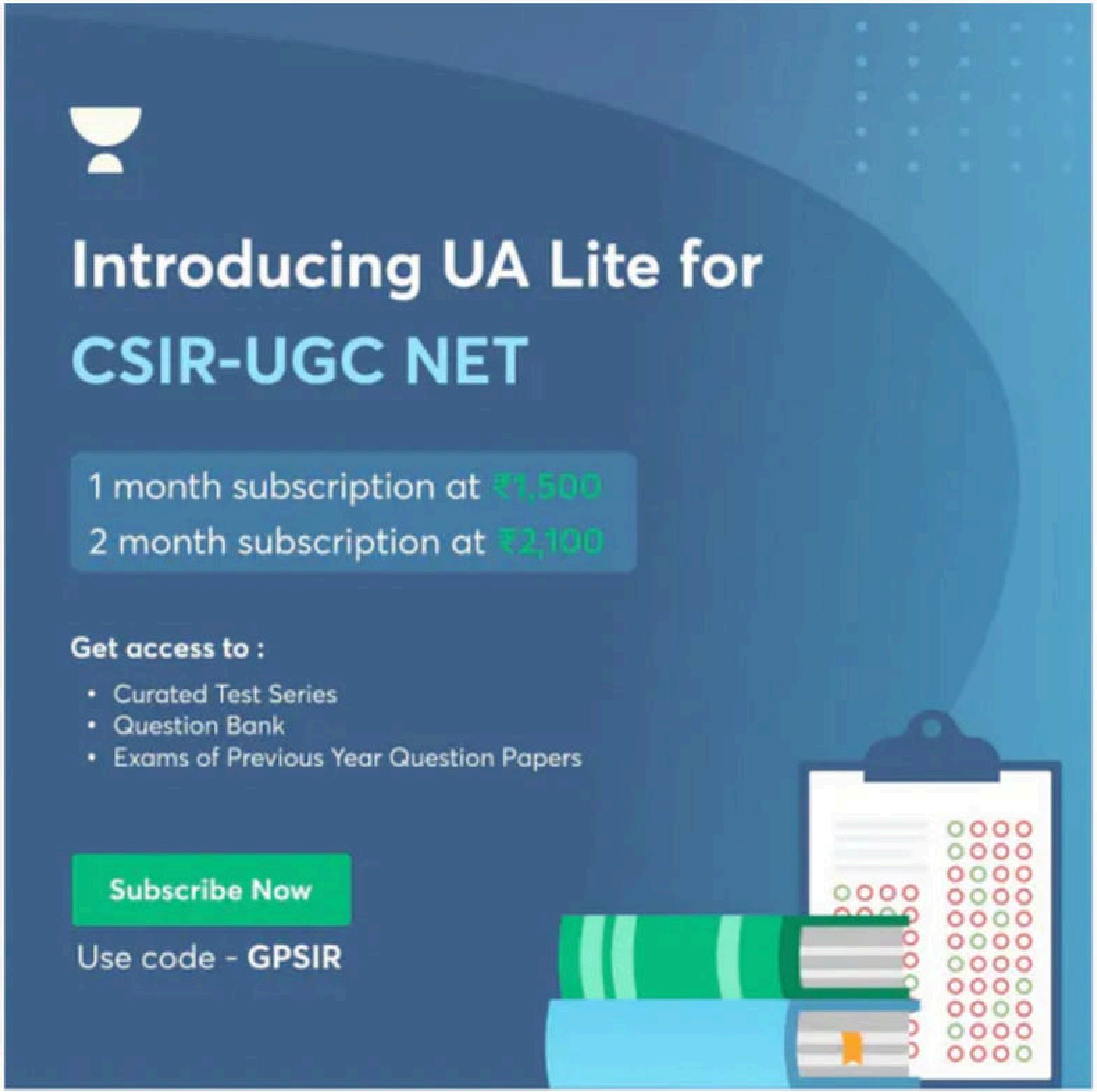
(c) $e^{x}\tan y=x^2+c$

(d) $e^{-x}\tan^{-1}y=x^3+c$


unacademy
CSIR
We heard you and upgraded the
Ask a Doubt feature to suit your needs!
Unacademy Ask a Doubt
The Ask a Doubt feature is now available on the Website and the Learner App . Getting your doubts clarified is easier and faster than before!
ASK A DOUBT


unacademy
RANK BOOSTER COURSE UNIT 3
CSIR NET 2022
1st AUGUST
Gajendra Purohit
Enroll Now
USE CODE
GPSIR
FOR 10% OFF
unacademy


unacademy
DETAILED COURSE 2.0
DIFFERENTIAL EQUATION
4th AUGUST
Gajendra Purohit
Enroll Now
USE CODE
GPSIR
FOR 10% OFF
unacademy


Introducing UA Lite for
CSIR-UGC NET
1 month subscription at ₹1,500
2 month subscription at ₹2,100
Get access to :
• Curated Test Series
• Question Bank
• Exams of Previous Year Question Papers
Subscribe Now
Use code - GPSIR

unacademy CSIR-UGC NET Search Login

Educator Profile

Gajendra Purohit

#5 Educator in CSIR-UGC NET

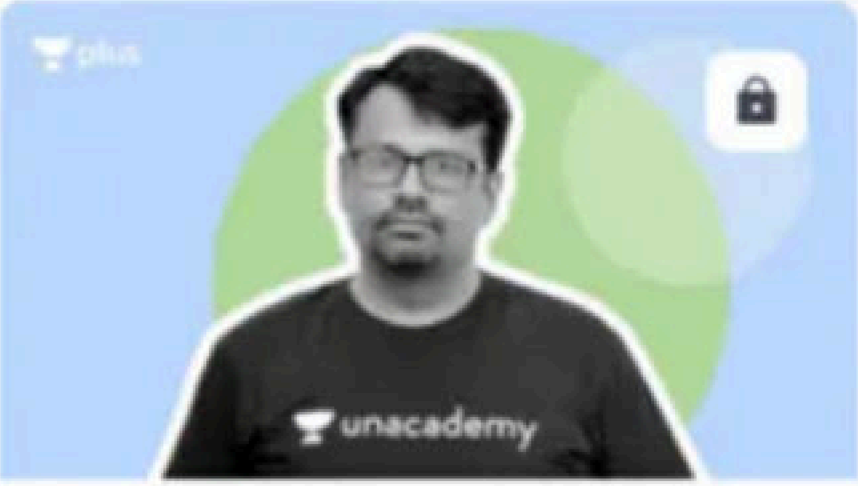
Dr.Gajendra Purohit PhD, CSIR NET (Maths) | Youtuber(330K+30k Sub.)/Dr.Gajendra Purohit (Maths), 17+ Yr. Experience, Author of Bestseller

Follow

11M Watch mins **1M** Watch mins (last 30 days) **22k** Followers **1k** Dedications

CSIR-UGC NET

SEE ALL



HINDI MATHEMATICAL SCIENCES

Course on Linear Algebra, Partial Diff. Equation & Calculus

Starts on Mar 1, 2021 • 24 lessons

Gajendra Purohit

HINDI MATHEMATICAL SCIENCES

Course on Complex Analysis & Integral Equation

Starts on Jan 14, 2021 • 16 lessons

Gajendra Purohit

HINDI MATHEMATICAL SCIENCES

Foundation Course on Mathematics for CSIR 2021

Starts on Dec 7, 2020 • 20 lessons

Gajendra Purohit

Educator highlights

- Works at **Pacific Science College**
- Studied at **M.Sc., NET, PhD(Algebra), MBA(Finance), BEd**
- PhD, NET | Plus Educator For CSIR NET | Youtuber (260K+Subs.) | Director Pacific Science College |
- Lives in **Udaipur, Rajasthan, India**
- Unacademy Educator since

FEE DETAILS FOR IIT JAM SUBSCRIPTION

No cost EMI available on 6 months & above subscription plans

24 months	Save 67%	₹ 908 / mo	Total ₹ 21,780	You get 6 months extra for free	Offer expires 15 Jun 2022
12 months	Save 54%	₹ 1,248 / mo	Total ₹ 14,974	You get 6 months extra for free	Offer expires 15 Jun 2022
9 months	Save 45%	₹ 1,497 / mo	Total ₹ 13,475		
6 months	Save 25%	₹ 2,042 / mo	Total ₹ 12,252		
3 months	Save 17%	₹ 2,269 / mo	Total ₹ 6,807		
1 month		₹ 2,723 / mo	Total ₹ 2,723		

To be paid as a one-time payment

Have a referral code?

Proceed to pay

Get 10% Off

After Using My Referral Code

No cost EMI available on 6 months & above subscription plans

24 months	Save 67%	₹ 817 / mo	₹ ~~21,780~~ ₹ 19,602	You get 6 months extra for free	Offer expires 15 Jun 2022
12 months	Save 54%	₹ 1,123 / mo	₹ ~~14,974~~ ₹ 13,477	You get 6 months extra for free	Offer expires 15 Jun 2022
9 months	Save 45%	₹ 1,348 / mo	₹ ~~13,475~~ ₹ 12,128		
6 months	Save 25%	₹ 1,838 / mo	₹ ~~12,252~~ ₹ 11,027		
3 months	Save 17%	₹ 2,042 / mo	₹ ~~6,807~~ ₹ 6,126		

GPSIR

Awesome! You get 10% off

Proceed to pay