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

Detailed Course 2.0 on

Sequence and Series For IIT JAM' 23

October 26
9:00 AM

Gajendra Purohit

Enroll Now

Use code **GPSIR** for 10% off

unacademy

DETAILED COURSE 2.0

GROUP THEORY FOR IIT JAM 2023

6th OCTOBER

Gajendra Purohit

Enroll Now

USE CODE
GPSIR
FOR 10% OFF

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

GPSIR

Awesome! You get 10% off

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	

Proceed to pay

Limit point / Cluster point :

(i) **Terms of Sequence :** Let $\langle a_n \rangle$ be a sequence then $a_1, a_2, ..., a_n$ are called term of sequence.

Definition : A number p is said to be a limit point of a sequence $\langle a_n \rangle$, if

every neighbourhood of p contain infinite terms of $\langle a_n \rangle$.

Another Definition : A number 'p' repeated infinitely times, then p is said to be limit points of $\langle a_n \rangle$.

Note : Let $\langle a_n \rangle$ be a sequence of real number and let p be a real number, if there exist a neighbourhood of p which contain only finite terms of sequence, then p is not limit point.

Result :

(1) **Bolzano – Weierstrass Theorem :** Every bounded sequence has a limit point.

(2) Unbounded sequence may have limit point.

Limit of a sequence : Let $\langle a_n \rangle$ be a sequence, limit of the sequence is denoted by $\lim_{n\to\infty} a_n$.

Result :

(1) A sequence can have atmost one limit.

(2) Unbounded sequence cannot have limit

Example : $a_n = \begin{cases} 2 & if \quad n \text{ is prime} \\ n & if \quad n \text{ is not prime} \end{cases}$

It has no limit because it is unbounded but it has a limit point.

(3) A non-monotonic sequence can have limit.

(4) A bounded sequence may not have limit

(5) If limit point of a sequence is unique, then it is limit of sequence.

(6) If limit points of a sequence are more than one then sequence cannot have limit.

(7) Limit of a sequence is also a limit point of a sequence but conversely need not be true.

Q1 . Which of the following is true

(a) Every sequence has a limit point

(b) A limit point is a limit of sequence

(c) Unbounded sequence may have a limit

(d) Unbounded sequence may have limit point

Q2. Consider the interval (-1, 1) and a sequence $\{a_n\}_{n=1}^{\infty}$ of elements in (-1 , 1). Then

(a) Every limit point of $\{a_n\}$ is in (-1, 1)

(b) Every limit point of $\{a_n\}$ is in [-1, 1]

(c) The limit points of $\{a_n\}$ can only be in {-1, 0, 1}

(d) The limit points of $\{a_n\}$ cannot be in {-1, 0, 1}

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

GPSIR

Awesome! You get 10% off

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	

Proceed to pay

FOUNDATION COURSE OF

MATHEMATICS

FOR CSIR-NET

Q3. Which of the following statement is true?

(a) A number 'p' is said to be limit point of sequence $\langle a_n \rangle$ if every neighbourhood of 'p' contain infinite number of terms of $\langle a_n \rangle$

(b) A number 'q' is said to be limit point of sequence $\langle b_n \rangle$ if every neighbourhood of 'q' contain finite number of terms of $\langle b_n \rangle$.

(c) Any point of a sequence is said to be limit point of a sequence if every neighbourhood of this point contain atmost two point of given sequence.

(d) None of these

Q.4. Define $S=\lim_{n\to\infty}\left(1-\frac{1}{2^2}\right)\left(1-\frac{1}{3^2}\right)\ldots\left(1-\frac{1}{n^2}\right)$ **IIT JAM 2021**

(a) 3/4 (b) 1

(c) 1/2 (d) 1/4

Q.5. Let $\langle a_n \rangle$ be the sequence of the real numbers such that $a_1 = 1$ and $a_{n+1} = a_n + a_n^2$ for all $n \geq 1$ Then **IIT JAM 2019**

(a) $a_4 = a_1(1 + a_1)(1 + a_2)(1 + a_3)$

(b) $\lim_{n\to\infty} \frac{1}{a_n} = 0$

(c) $\lim_{n\to\infty} \frac{1}{a_n} = 1$

(d) $\lim_{n\to\infty} a_n = 0$

Q6. Let $a_n = \frac{b_{n+1}}{b_n}$, where $b_1 = 1$, $b_2 = 1$ and $b_{n+2} = b_n + b_{n+1}$, $n \in N$.

Then $\lim_{n\to\infty} a_n$ is **IIT-JAM – 2018**

(a) $\frac{1-\sqrt{5}}{2}$ (b) $\frac{1-\sqrt{3}}{2}$

(c) $\frac{1+\sqrt{3}}{2}$ (d) $\frac{1+\sqrt{5}}{2}$

Q7. Let $\langle S_n \rangle$ be a sequence of positive real numbers satisfying $2S_{n+1} = S_n^{\,2} + \frac{3}{4}$, $n \geq 1$, if α and β are the roots of the equation $x^2 - 2x + \frac{3}{4} = 0$ and $\alpha < S_1 < \beta$, then which of the following is true? **IIT-JAM 2016**

(a) $\langle S_n \rangle$ is monotonically decreasing

(b) $\langle S_n \rangle$ is monotonically increasing

(c) $\lim_{n\to\infty} S_n = \alpha$

(d) $\lim_{n\to\infty} S_n = \beta$

unacademy

Detailed Course 2.0 on

Sequence and Series For IIT JAM' 23

October 26
9:00 AM

Gajendra Purohit

Enroll Now

Use code **GPSIR** for 10% off

unacademy

DETAILED COURSE 2.0

GROUP THEORY FOR IIT JAM 2023

6th OCTOBER

Gajendra Purohit

Enroll Now

USE CODE
GPSIR
FOR 10% OFF

unacademy CSIR-UGC NET Search Login

Educator Profile

Gajendra Purohit

#5 Educator in CSIR-UGC NET

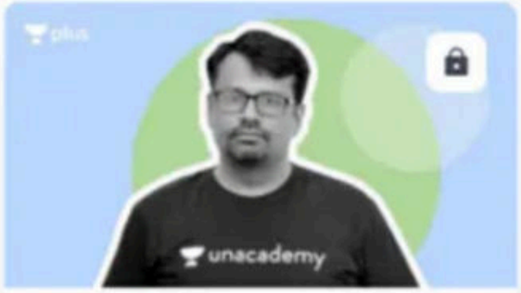
Dr.Gajendra Purohit PhD, CSIR NET (Maths) | Youtuber(330K+30k Sub.)/Dr.Gajendra Purohit (Maths), 17+ Yr. Experience, Author of Bestseller

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

GPSIR

Awesome! You get 10% off

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	

Proceed to pay

THANK YOU VERY MUCH EVERYONE

GET THE UNACADEMY PLUS SUBSCRIPTION SOON.

TO GET 10% DISCOUNT IN TOTAL SUBSCRIPTION AMOUNT

USE REFERRAL CODE: GPSIR