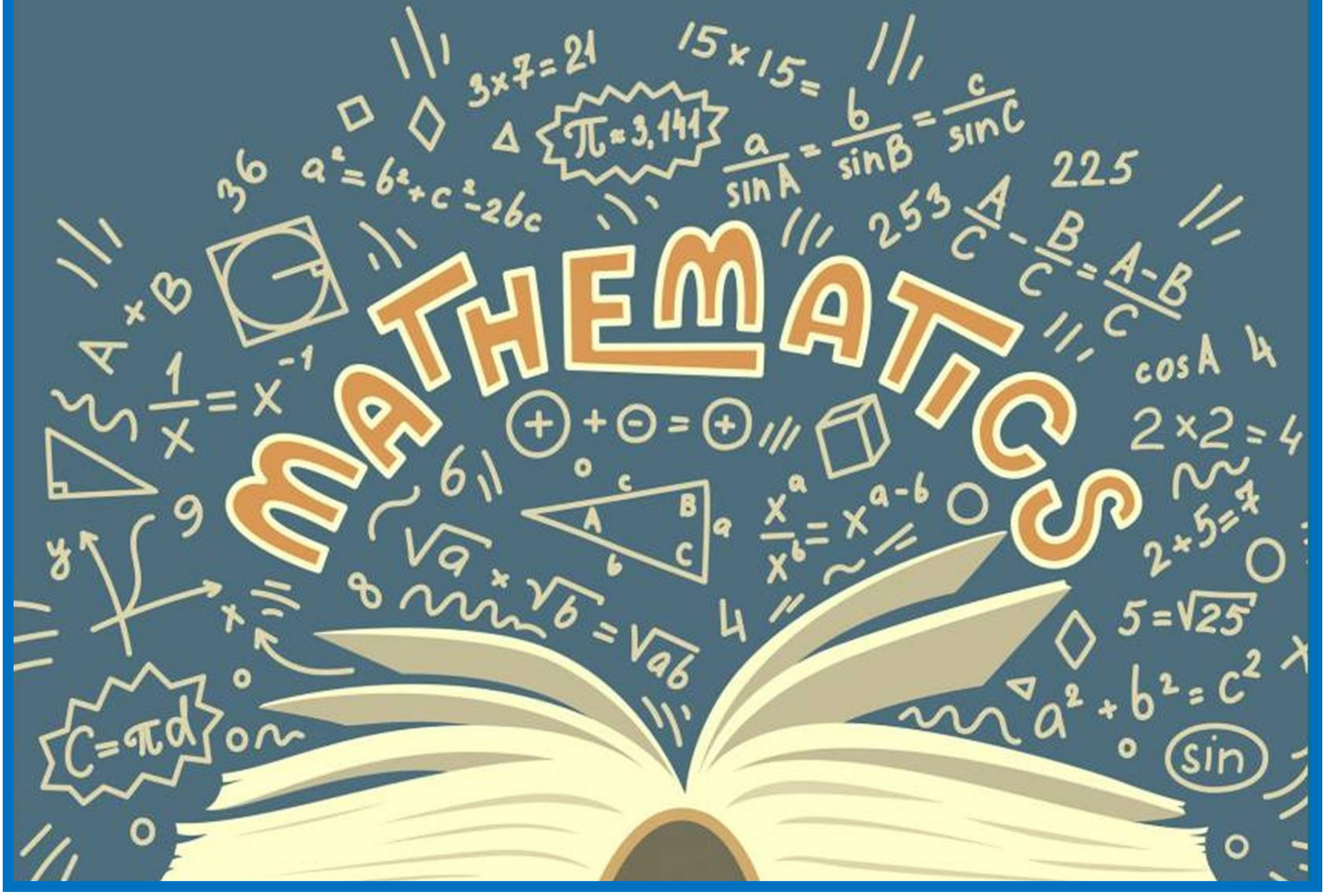
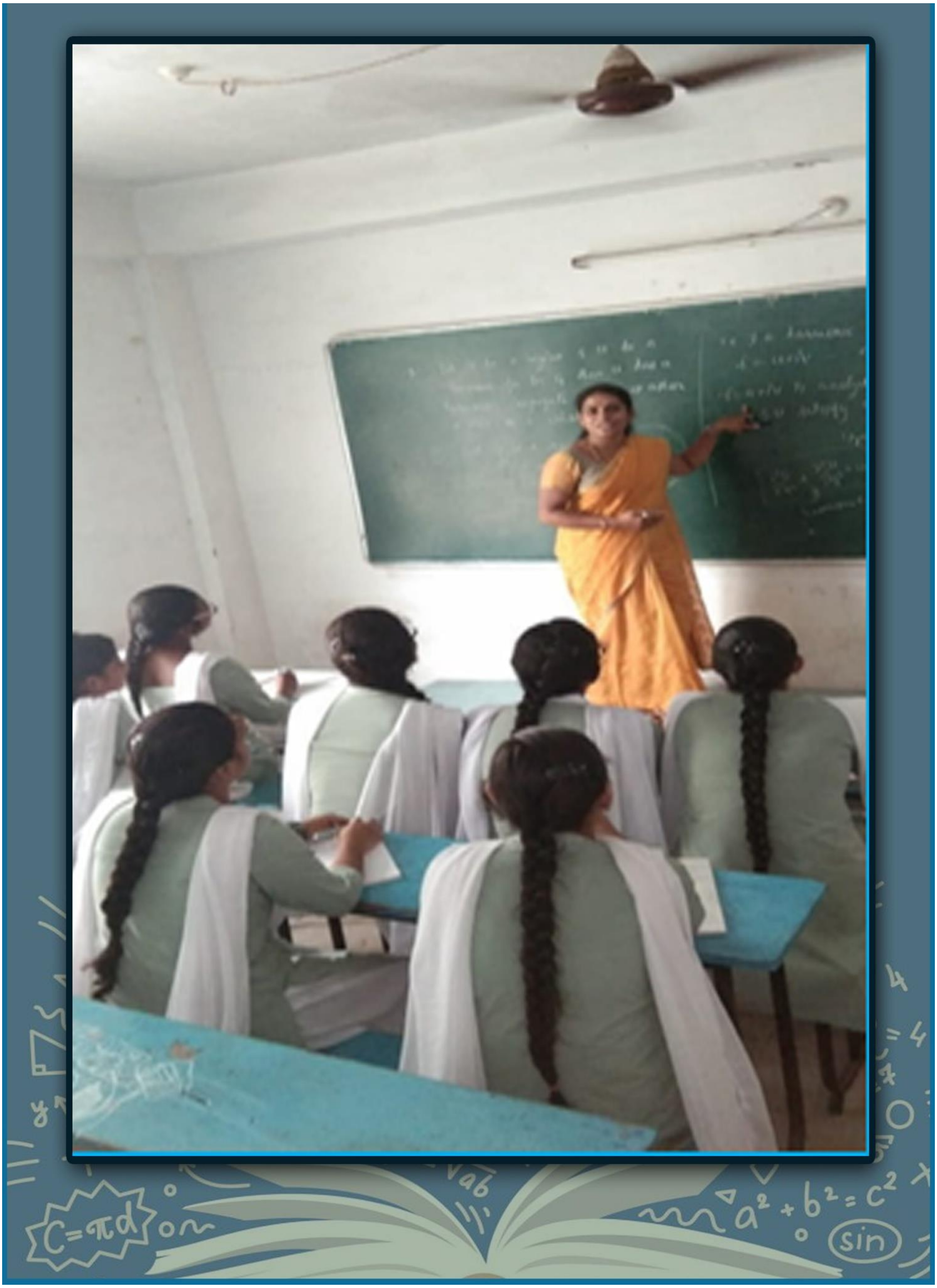
DEPARTMENT OF
MATHEMATICS



TEACHING AND LEARNING METHODS

LECTURE METHOD

Lecture Method is an instructional method where the instructor determines knowledge to be communicated to students and delivers it. This is an informatics centric and teacher-led method. Teacher acts a role – playing resource in classroom learning.

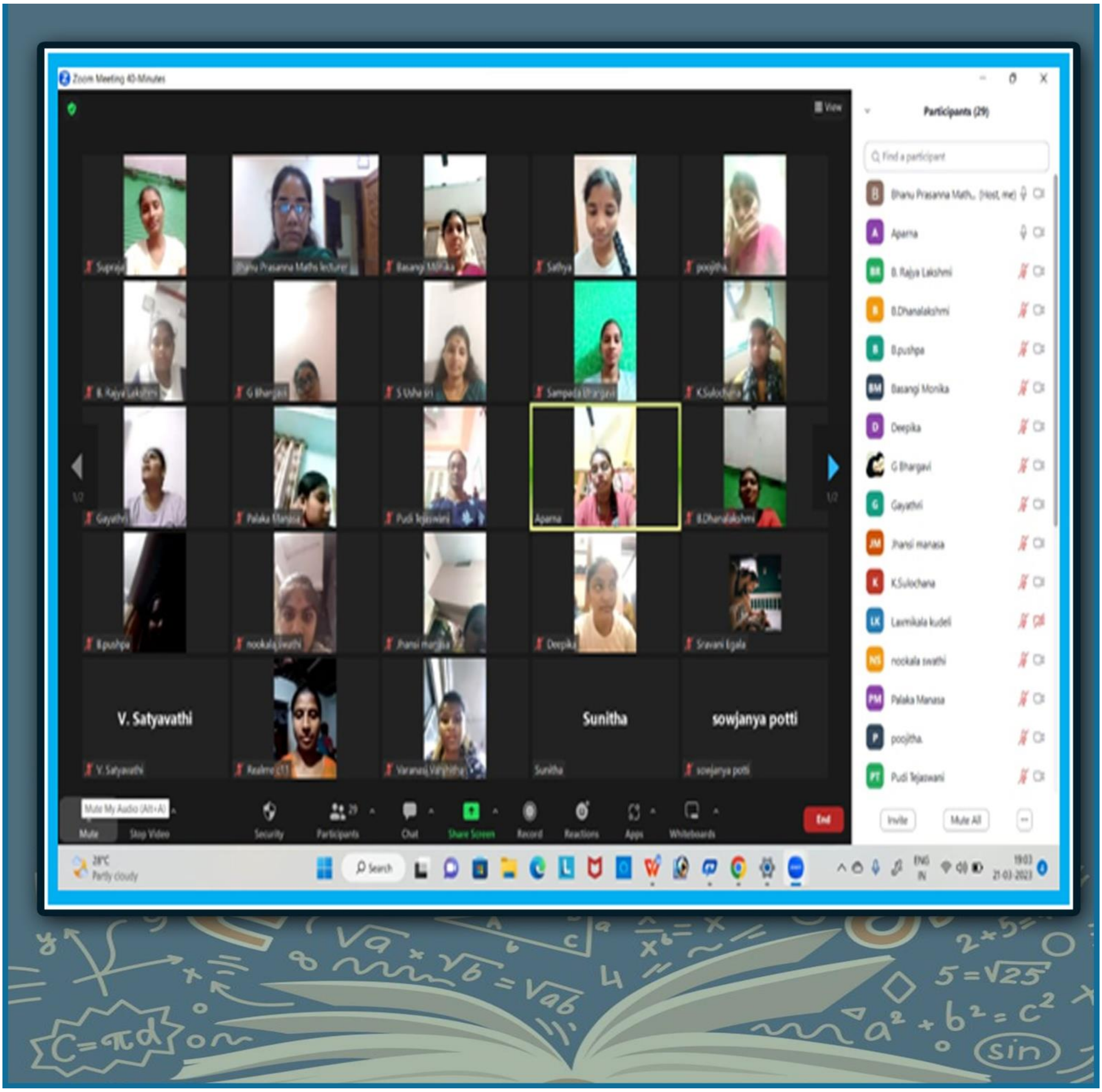

C=πd
a²+b²=c²
sin

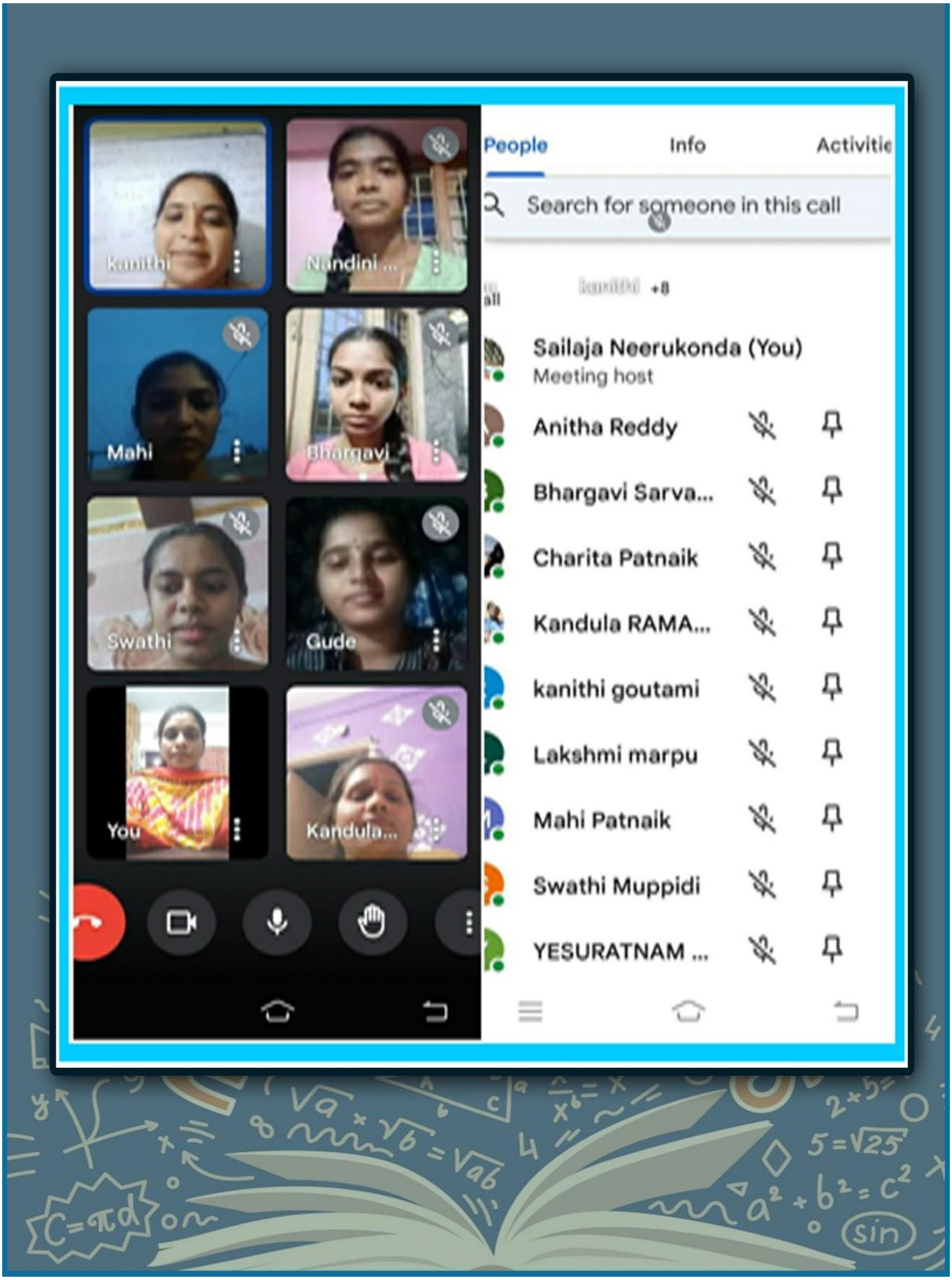

C=πd
a²+b²=c²
sin

ICT ENABLED TEACHING

This is the process of educating the students on virtual platforms which proved to be a very important mode of educating the students during the pandemic period.we use the zoom and google platforms to conduct classes .

Zoom classes




kanithi
Nandini ...
Mahi
Bhargavi
Swathi
Gude
You
Kandula...
People
Info
Search for someone in this call
Sailaja Neerukonda (You)
Meeting host
Anitha Reddy
Bhargavi Sarva...
Charita Patnaik
Kandula RAMA...
kanithi goutami
Lakshmi marpu
Mahi Patnaik
Swathi Muppidi
YESURATNAM ...
C=πd
5=√25
a²+b²=c²
sin

PPT PRESENTATIONS

NAME OF THE LECTURER : N.SAILAJA

SUBJECT : TOPOLOGY

TOPIC : COMPACTNESS

NAME OF THE LECTURER : K.GOWTHAMI

SUBJECT : ALGEBRA

TOPIC : IRREDUCIBLE POLYNOMIALS

NAME OF THE LECTURER : H.JOGARAO

SUBJECT : MATHEMATICALS SPECIAL FUNCTIONS

TOPIC : FACTORIAL FUNCTIONS

NAME OF THE LECTURER : SANTOSHINI

SUBJECT : REAL ANALYSIS

TOPIC : MEAN VALUE THEOREM

PARTICIPATIVE METHOD

STUDENT SEMINARS

Seminars are given by the students on every Saturday as a part of learning activity.This enables the students to improve their knowledge,skills in presentation and understanding the topic in depth.


SEMINAR

STUDENT PRESENTATIONS

PPT presentations enable the students to present their ideas and deliver them in a effective manner and gives a clear idea of the topic .

STUDENT NAME : MEGHANA (MSCS)

TOPIC : GROUPS

STUDENT NAME : MEGHANA (MPCS)

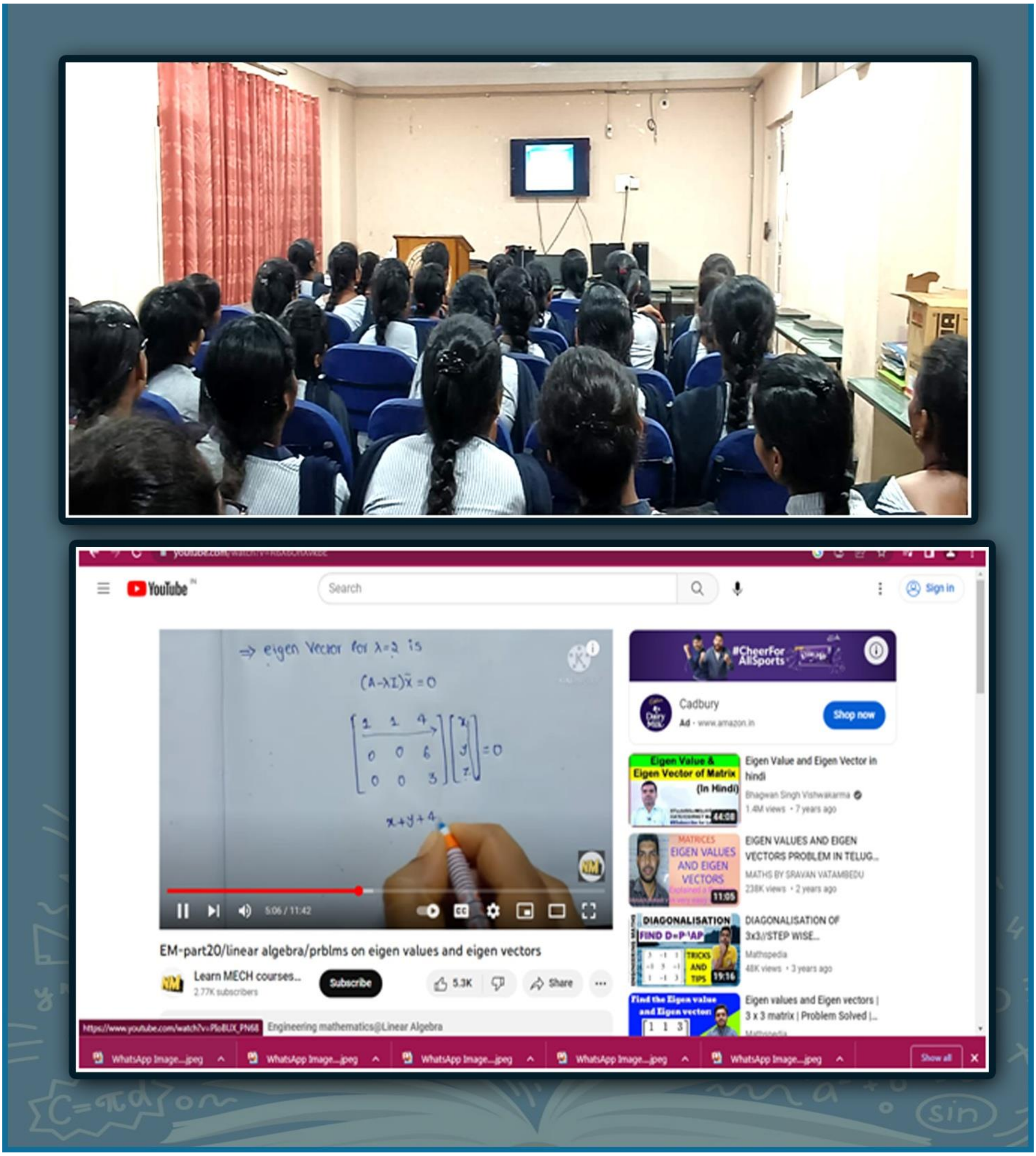
TOPIC : GROUPS

STUDENT NAME : MANISHA (MPCS)

TOPIC : SUB GROUPS

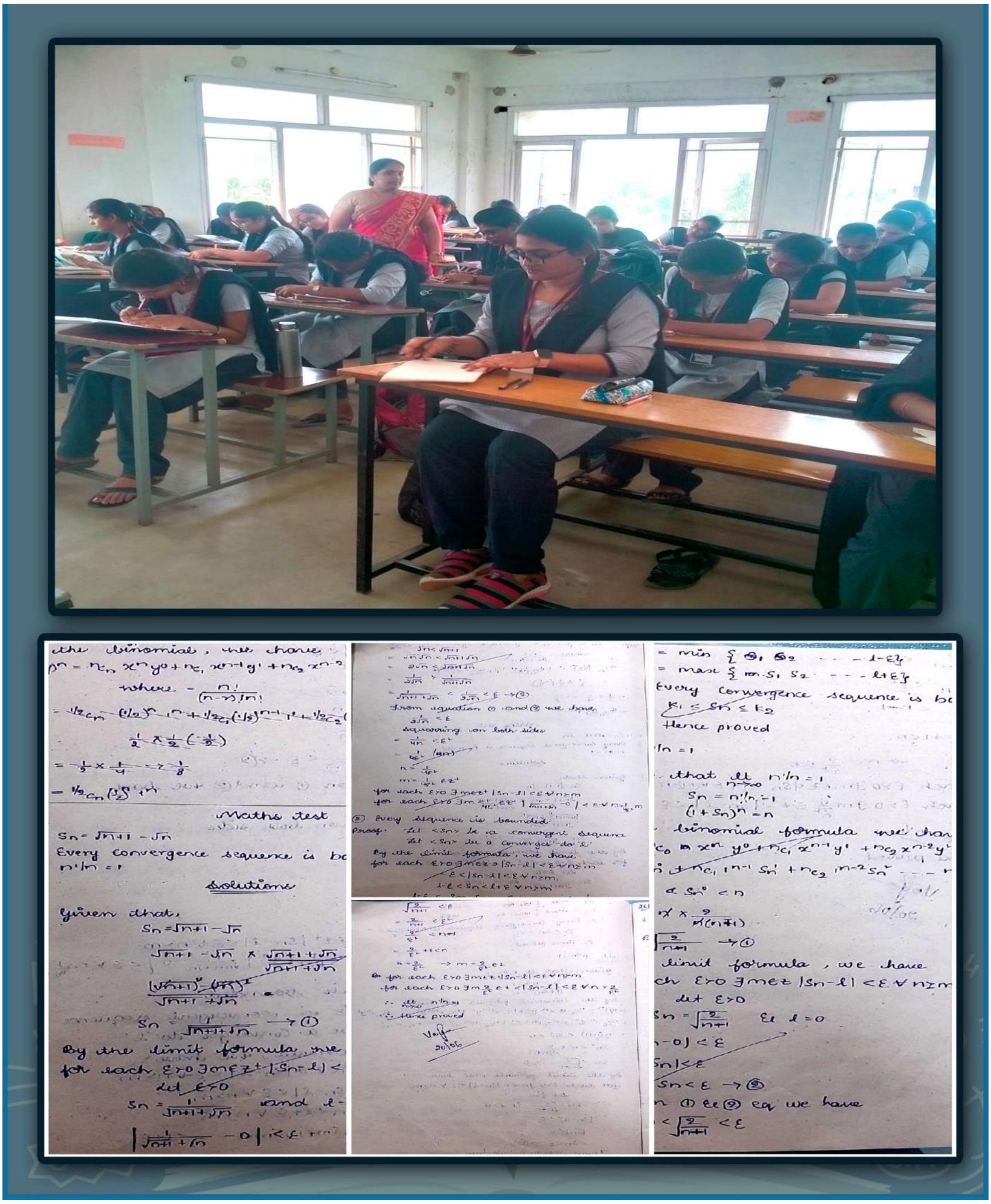
TUTORIAL METHOD

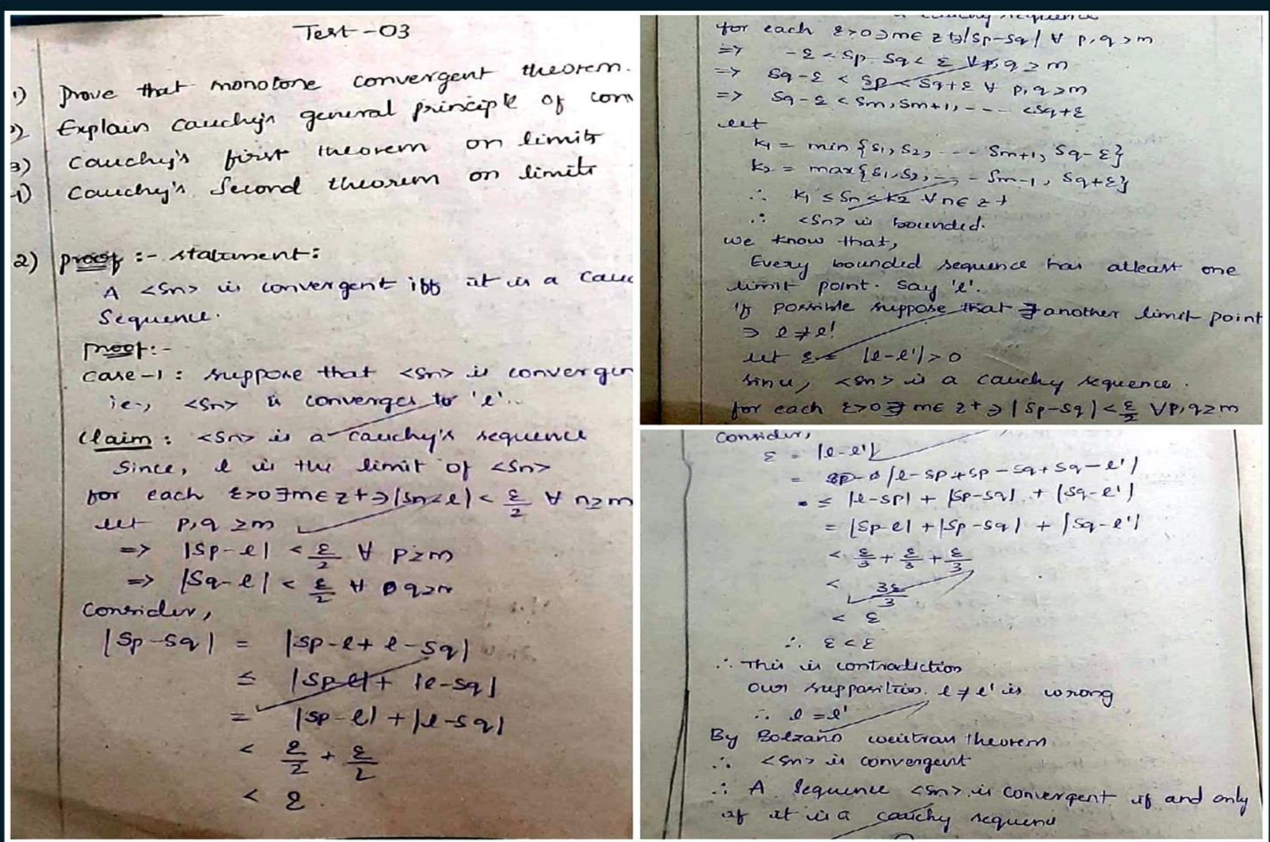
As a part of learning process for students we provide tutorial method of teaching which is more interactive and specific than a book or a lecture. A tutorial seeks to teach by example and supply the information to complete a certain task.



ASSINGNMENT

Students are assingned works based on the academics on weekly basis to make sure that the students learn ,practice and demonstrate the given topics in an efficient way.





Test - 03

1) Prove that monotone convergent theorem.
2) Explain cauchy's general principle of con
3) cauchy's first theorem on limits
4) cauchy's Second theorem on limits

2) proof :- statement:

A $\langle S_n \rangle$ is convergent iff it is a cauc Sequence.

proof:-

case-1 : suppose that $\langle S_n \rangle$ is convergen

i.e., $\langle S_n \rangle$ is converges to 'l'.

Claim : $\langle S_n \rangle$ is a cauchy's sequence

Since, l is the limit of $\langle S_n \rangle$

for each $\varepsilon > 0 \ \exists m \in Z^+ \ni |S_n - l| < \frac{\varepsilon}{2} \ \forall n \geq m$

let $p, q \geq m$

$\Rightarrow |S_p - l| < \frac{\varepsilon}{2} \ \forall p \geq m$

$\Rightarrow |S_q - l| < \frac{\varepsilon}{2} \ \forall q \geq m$

Consider,

$$|S_p - S_q| = |S_p - l + l - S_q|$$
$$\leq |S_p - l| + |l - S_q|$$
$$= |S_p - l| + |l - S_q|$$
$$< \frac{\varepsilon}{2} + \frac{\varepsilon}{2}$$
$$< \varepsilon.$$

for each $\varepsilon > 0 \ \exists m \in Z^+ \ni |S_p - S_q| \ \forall p, q > m$

$\Rightarrow -\varepsilon < S_p - S_q < \varepsilon \ \forall p, q \geq m$

$\Rightarrow S_q - \varepsilon < S_p < S_q + \varepsilon \ \forall p, q > m$

$\Rightarrow S_q - \varepsilon < S_m, S_{m+1}, \ldots < S_q + \varepsilon$

let

$k_1 = \min\{S_1, S_2, \ldots S_{m+1}, S_q - \varepsilon\}$

$k_2 = \max\{S_1, S_2, \ldots S_{m-1}, S_q + \varepsilon\}$

$\therefore k_1 \leq S_n \leq k_2 \ \forall n \in Z^+$

$\therefore \langle S_n \rangle$ is bounded.

we know that,

Every bounded sequence has atleast one limit point. Say 'l'.

If possible suppose that $\exists$ another limit point $\ni l \neq l'$

let $\varepsilon = |l - l'| > 0$

Since, $\langle S_n \rangle$ is a cauchy sequence.

for each $\varepsilon > 0 \ \exists m \in Z^+ \ni |S_p - S_q| < \frac{\varepsilon}{2} \ \forall p, q \geq m$

Consider,

$$\varepsilon = |l - l'|$$
$$= |l - S_p + S_p - S_q + S_q - l'|$$
$$\leq |l - S_p| + |S_p - S_q| + |S_q - l'|$$
$$= |S_p - l| + |S_p - S_q| + |S_q - l'|$$
$$< \frac{\varepsilon}{3} + \frac{\varepsilon}{3} + \frac{\varepsilon}{3}$$
$$< \frac{3\varepsilon}{3}$$
$$< \varepsilon$$

$\therefore \varepsilon < \varepsilon$

$\therefore$ This is contradiction

our supposition $l \neq l'$ is wrong

$\therefore l = l'$

By Bolzano weistrass theorem

$\therefore \langle S_n \rangle$ is convergent

$\therefore$ A Sequence $\langle S_n \rangle$ is convergent if and only if it is a cauchy sequence

QUIZ

Department of Mathematics conducts quiz for the maths students on monthly basis which enables the students to enhance their knowledge in academics and build confidence levels.Quiz competitions are conducted in the respective classrooms by dividing them into four groups.Students actively participated in the competition under the guidance of the concerned faculty in-charge.


Quiz

QUIZ- GROUP THEORY

1) Which of the following are multiplicative tables for groups with four elements?

I.

	a	b	c	d
a	a	b	c	d
b	b	c	d	a
c	c	d	a	b
d	d	a	b	c

II.

	a	b	c	d
a	a	b	c	d
b	b	a	d	c
c	c	d	a	a
d	d	c	a	b

III.

	a	b	c	d
a	a	b	c	d
b	b	a	d	c
c	c	d	c	d
d	d	c	d	c

a.

2) . If b and c are elements in a group G and if $b^5 = c^3 = e$, where e is the identity of G,then the inverse of $b^2cb^4c^2$ must be:

3) Let G_n be a cyclic group of order n. Which of the following direct product is not cyclic?

4) Let p and q be distinct primes. There is a proper subgroup J of the additive group of integers which contain s exactly three elements of the set p, p + q, pq, p^q, q^p . Which three elements are in J ?

5) 5Two subgroups H and K of a groups have orders 12 and 30 respectively. Which of thefollowing could not be the order of the subgroup G generated by H and K?

6) Let $\mathbb{Z}$ be the group of integers under the operation of addition. Which of the followingsubsets of $\mathbb{Z}$ is not a subgroup of $\mathbb{Z}$?

7) A cyclic group of order 15 has an element x such that the set $\{x^3, x^5, x^9\}$ has exactlytwo elements. The number of elements in the set $\{x^{13n}$: n is a positive integer$\}$ is

8) Let ∧ be the binary operation on the rational numbers given by a ∧ b = a + b + 2ab.Which of the following are true?

A)∧ is commutative

B)There is a rational number that is a ∧-identity

C)Every rational number has a ∧-inverse

a. I only
b. II only
c. I and II only
d. I and III only

9) For which integers n such that $3 \leq n$ 11 is there only one group of order n (uptoisomorphism)?

10) If a finite group G contains a subgroup of order seven but no element (other than identity) is its own inverse, then the order of G could be

11) A group G in which $(ab)^2 = a^2b^2$ for all a, b in G, is necessarily

12) What is the largest order of an element in the group of permutations of 5 objects?

13) Let $\mathbb{Z}_1{}^{\times}{}_7$ be the group of units of $\mathbb{Z}_{17}$ under multiplication. Which of the following aregenerators of $\mathbb{Z}_{17}^{\times}$?

14) The subgroup H of a group G is called *characteristic* if for every automorphism $\phi : G \to G$, $\phi(H) \subseteq H$. Which of the following statements is true?

a. Every characteristic subgroup is normal.
b. Every normal subgroup is characteristic.
c. If N is a normal subgroup of G and M a characteristic subgroup of N, then
   M is a normal subgroup of G
d. Both A and C are true

15) The order of the permutation $\begin{matrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 \\ 2 & 5 & 4 & 7 & 1 & 8 & 3 & 6 \end{matrix}$ is

16) G has an element of order 7 only if

17) How many generators does the group $(\mathbb{Z}_{24}, +)$ have?

18) Let p and q be distinct primes. How many (mutually nonisomorphic) groups are thereof order p^2q^4?

19) Let G be the symmetric groups on 5 objects. Then the number of distinct conjugacyclasses in G is:-

20) he number of group homomorphisms from S_3 to $\mathbb{Z}_6$ are