RABINDRA MAHAVIDYALAYA

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CHAMPADANGA, HOOGHLY, PIN-712401

Estd. -1971

Ref. No…… Date:……..

2.3.1 – Student centric methods, such as experiential learning, participative learning and problem solving methodologies are used for enhancing learning experiences and teachers use ICT –enabled tools including online resources for effective teaching and learing process

Teachers use ICT –enabled tools including online resources for effective teaching and learing process

List of content:

- Documents for various E-resources and Techniques used for the session 2022-23
- Documents for various E-resources and Techniques used for the session 2021-22
- Documents for various E-resources and Techniques used for the session 2020-21

14.08.2024
Principal
Rabindra Mahavidyalaya
Champadanga, Hooghly

Session 2022-23

Teachers use ICT enabled tools for effective teaching-learning process.

Session 2022-23

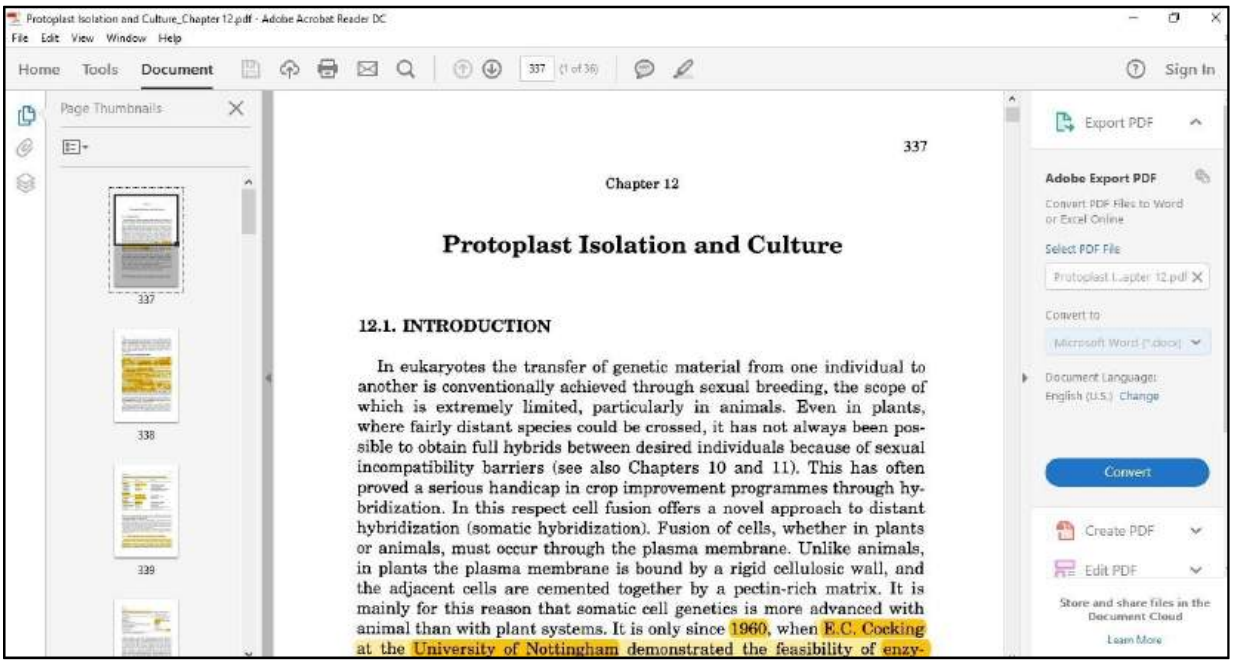
2.3.2 Teachers use ICT enabled tools for effective teaching-learning process.

Along with offline classes some Departments also use online mode of teaching. Google Meet, Zoom, Youtube links, Jamboard in Google meet and Tesmoz App have been used. For this purpose Desktop, laptop, LCD projector, printer, pen drive, Mobile Smart phone, microphone, scanner, external hard drive, sound system etc were used by the various Departments. Video, PPT, PDF,WORD documents, excel, e-resources, e-journals, e-books, notes etc. study materials were provided to the students during this academic session. E-Journals and e-books were used for effective teaching and learning. A few numbers of ICT enabled classrooms were developed in some Department and also in the college campus as central facilities.

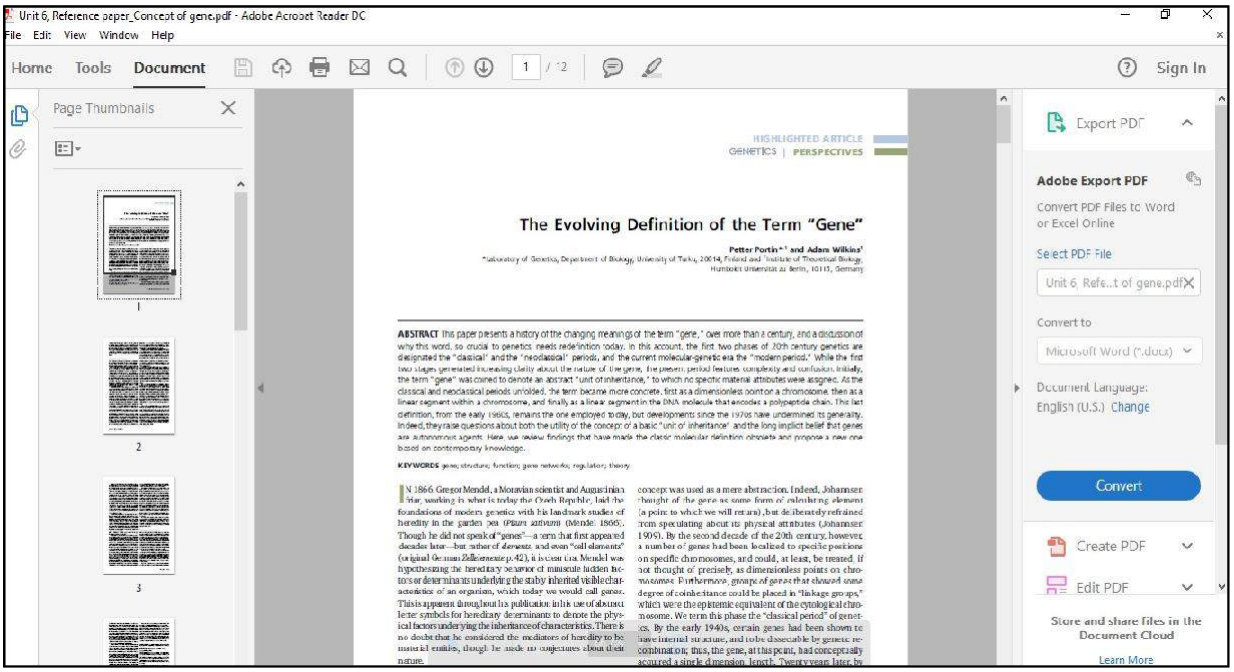
DEPARTMENT OF BOTANY

Snapshots/ screenshots of E-resources and techniques used in 2022-23

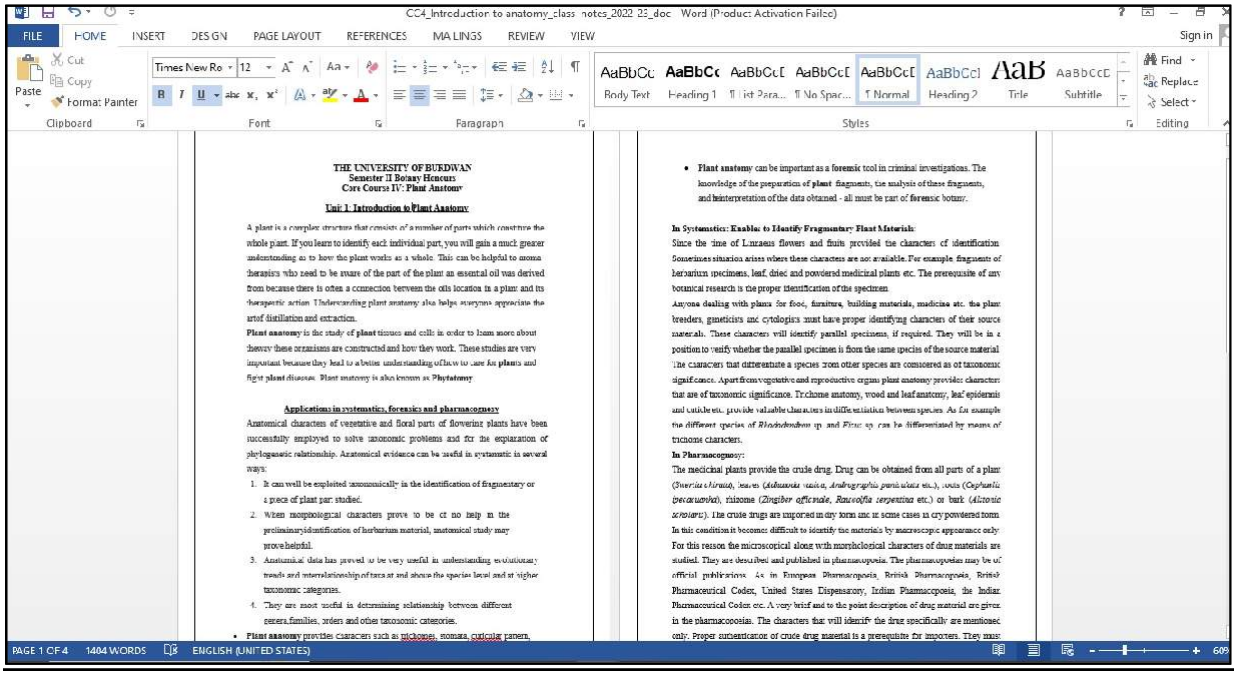
Teachers taking ICT enabled classes taken in classrooms



Screenshot (sample) of E- Book chapter



Screenshot (sample) of E- Journal Resource



THE UNIVESITY OF BUKDWAN
Semester II Botany Honours
Core Course IV: Plant Anatomy

Unit 1: Introduction to Plant Anatomy

A plant is a complex structure that consists of a number of parts which constitute the whole plant. If you learn to identify each individual part, you will gain a much greater understanding as to how the plant works as a whole. This can be helpful to aroma therapists who need to be aware of the part of the plant an essential oil was derived from because there is often a connection between the oils location in a plant and its therapeutic action. Understanding plant anatomy also helps everyone appreciate the artof distillation and extraction.

Plant anatomy is the study of **plant** tissues and cells in order to learn more about thehow these organisms are constructed and how they work. These studies are very important because they lead to a better understanding of how to care for **plants** and fight **plant** diseases. Plant anatomy is also known as **Phytotomy**

Applications in systematics, forensics and pharmacognosy

Anatomical characters of vegetative and floral parts of flowering plants have been successfully employed to solve taxonomic problems and for the explanation of phylogenetic relationship. Anatomical evidence can be useful in systematic in several ways:

1. It can well be exploited taxonomically in the identification of fragmentary or a piece of plant part studied.
2. When morphological characters prove to be of no help in the preliminaryidentification of herbarium material, anatomical study may prove helpful.
3. Anatomical data has proved to be very useful in understanding evolutionary trends and interrelationship of taxa at and above the species level and at higher taxonomic categories.
4. They are most useful in determining relationship between different genera,families, orders and other taxonomic categories.

- **Plant anatomy** provides characters such as nicknames, stomata, cuticular pattern,

- **Plant anatomy** can be important as a **forensic** tool in criminal investigations. The knowledge of the preparation of **plant** fragments, the analysis of these fragments, and theinterpretation of the data obtained - all must be part of **forensic** botany.

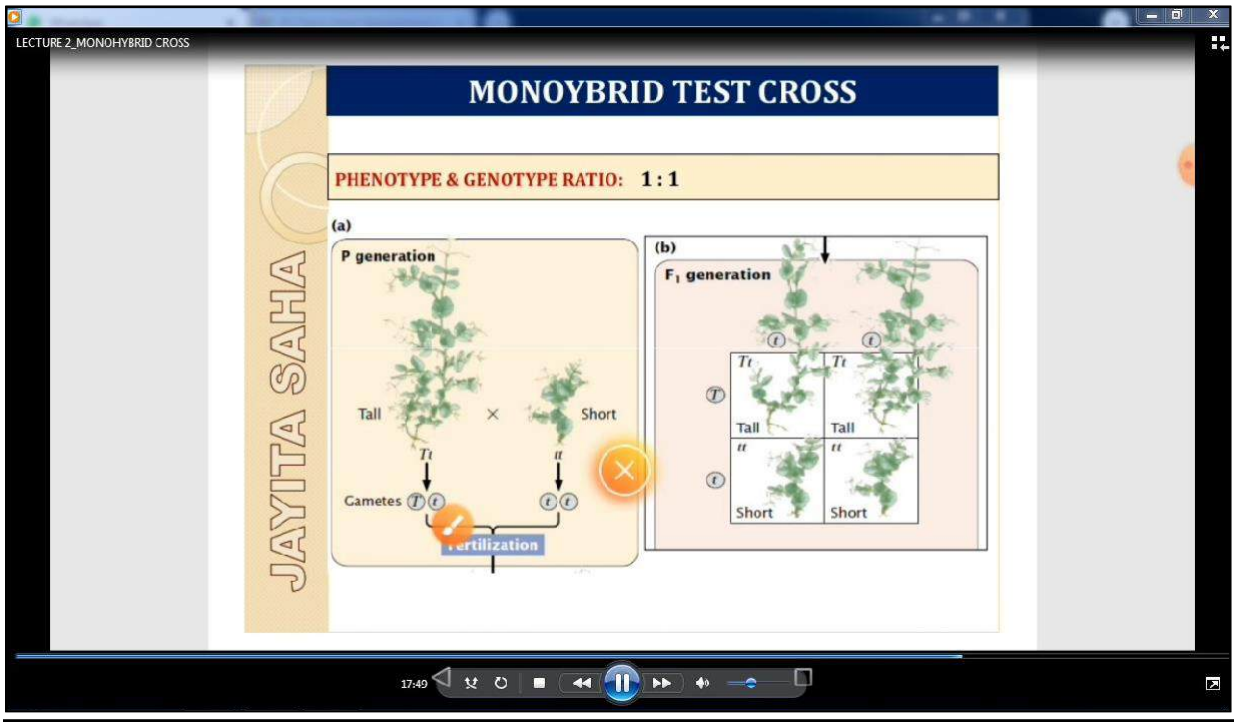
In Systematics: Enables to Identify Fragmentary Plant Materials:
Since the time of Linnaeus flowers and fruits provided the characters of identification. Sometimes situation arises where these characters are not available. For example fragments of herbarium specimens, leaf, dried and powderd medicinal plants etc. The prerequisite of any botanical research is the proper identification of the specimen.

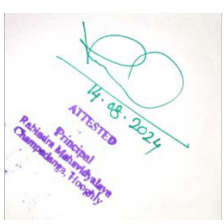
Anyone dealing with plants for food, furniture, building materials, medicine etc. the plant breeders, geneticists and cytologists must have proper identifying characters of their source materials. These characters will identify parallel specimens, if required. They will be in a position to verify whether the parallel specimen is from the same species of the source material. The characters that differentiate a species from other species are considered as of taxonomic significance. Apart from vegetative and reproductive organs plant anatomy provides characters that are of taxonomic significance. Trichome anatomy, wood and leaf anatomy, leaf epidermis and cuticle etc. provide valuable characters in differentiation between species. As for example the different species of *Rhododendron* sp. and *Pinus* sp. can be differentiated by means of trichome characters.

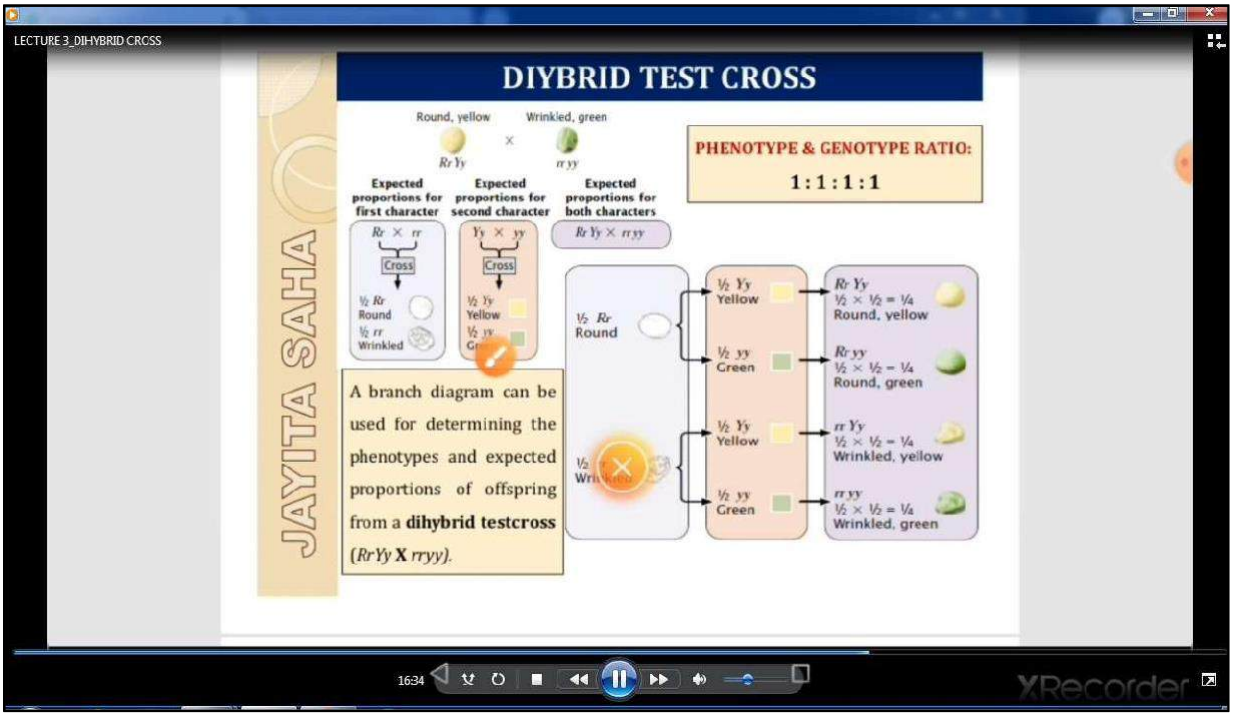
In Pharmacognosy:
The medicinal plants provide the crude drug. Drug can be obtained from all parts of a plant (*Swertia chirata*), leaves (*Adhatoda vasica*, *Andrographis paniculata* etc.), roots (*Cephaelis ipecacuanha*), rhizome (*Zingiber officinale*, *Rauvolfia serpentina* etc.) or bark (*Alstonia scholaris*). The crude drugs are imported in dry form and in some cases in dry powdered form. In this condition it becomes difficult to identify the materials by macroscopic appearance only. For this reason the microscopical along with morphological characters of drug materials are studied. They are described and published in pharmacopoeia. The pharmacopoeias may be of official publications. As in European Pharmacopoeia, British Pharmacopoeia, British Pharmaceutical Codex, United States Dispensatory, Indian Pharmacopoeia, the Indian Pharmaceutical Codex etc. A very brief and to the point description of drug material are given in the pharmacopoeias. The characters that will identify the drug specifically are mentioned only. Proper authentication of crude drug material is a prerequisite for importers. They must

PAGE 1 OF 4 1404 WORDS ENGLISH (UNITED STATES)

Screenshot (sample) of Word Doc. as class notes provided to students







Screenshot of video (sample)

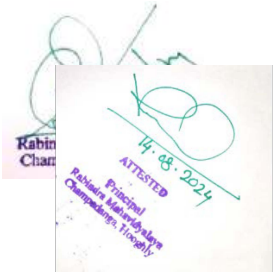
Department of Defence Studies(2022-23)

Prof. Jana delivered lecture on Submerin Mechanism.

Prof. Adhikari delivered lecture on Granade Mechanism.

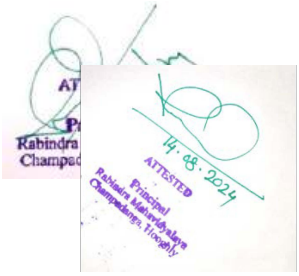
Prof. Adhikari delivered lecture on finding true north.

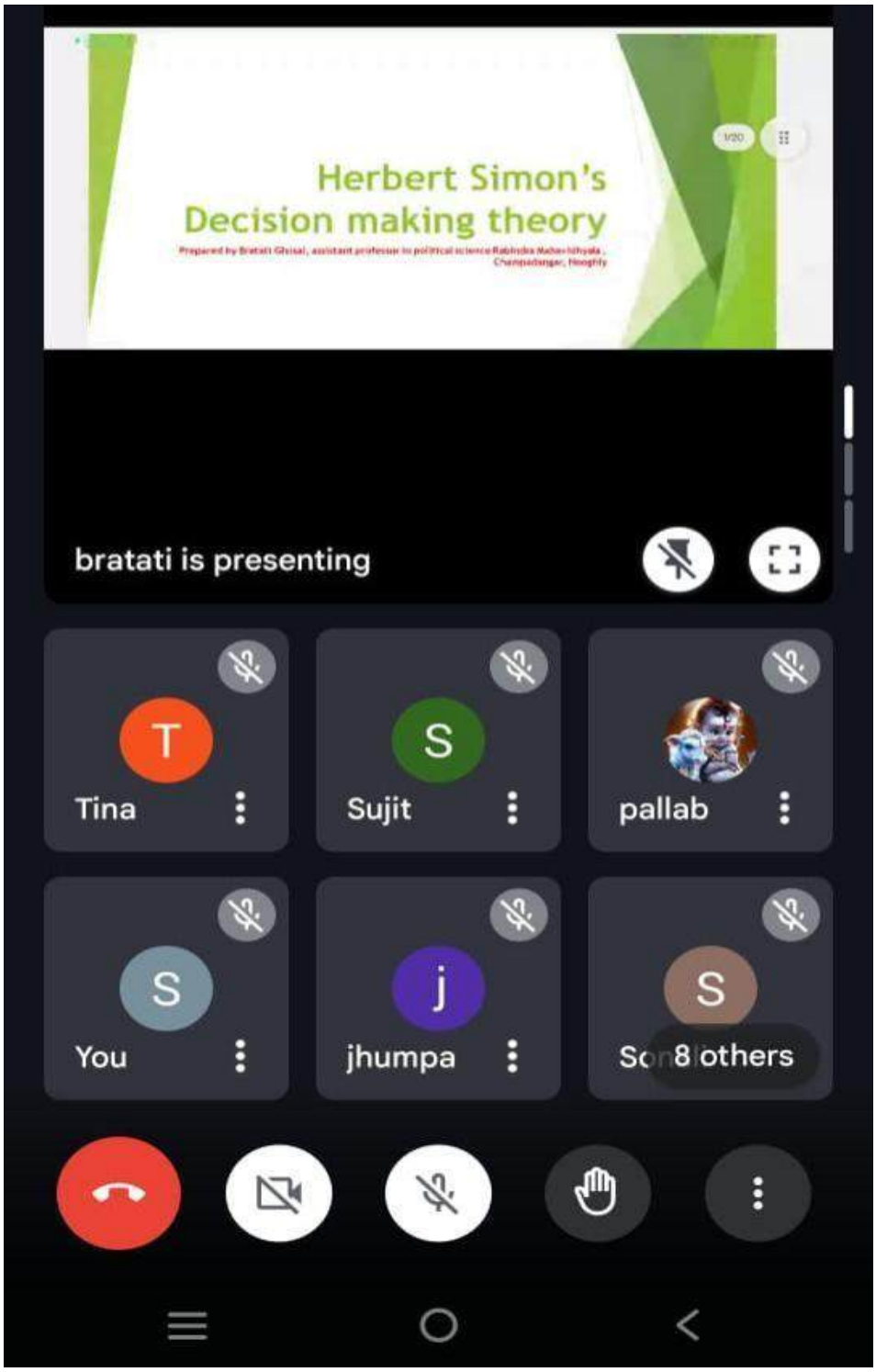
Prof. Jana delivered lecture on Submerin Main parts.



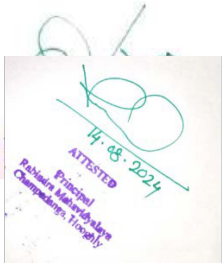
Department of Political Science(2022-2023)

Result of sample class test taken with the use of testmoz app





Sample ppt presentation for sem -3, paper CC-6



DEPARTMENT OF GEOGRAPHY(2022-2023)

Photo. Ongoing RS GIS class in the Department of Geography –An example of ICT enabled class

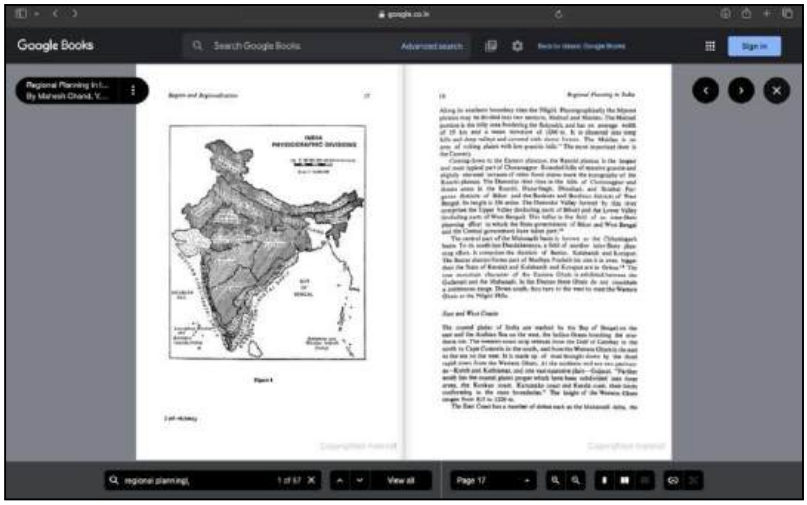


Figure. Making sense of intricate regional geography mapping using Google Books

Figure. Using Google Books to help understand complex climate diagrams

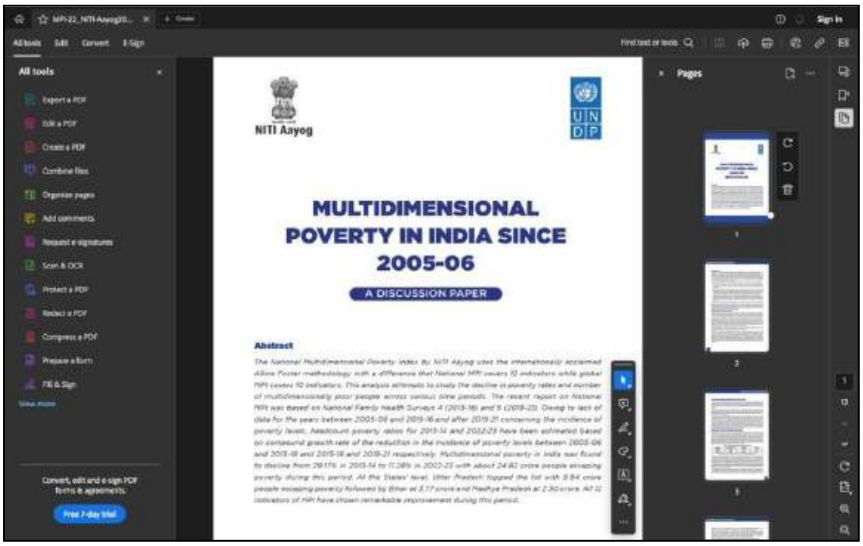
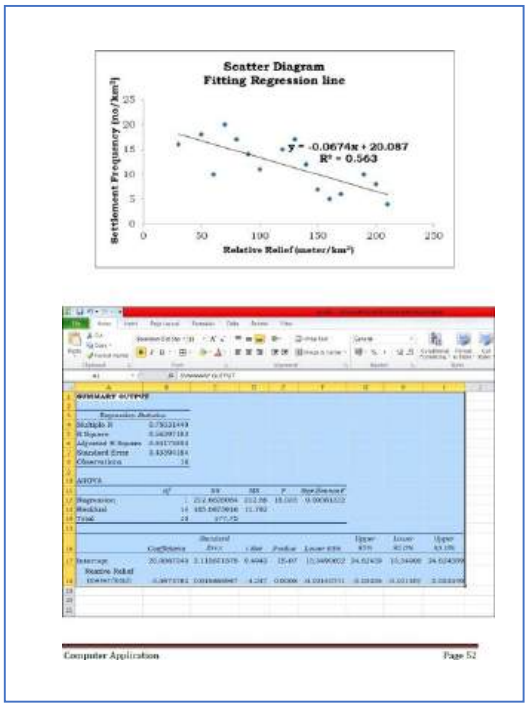
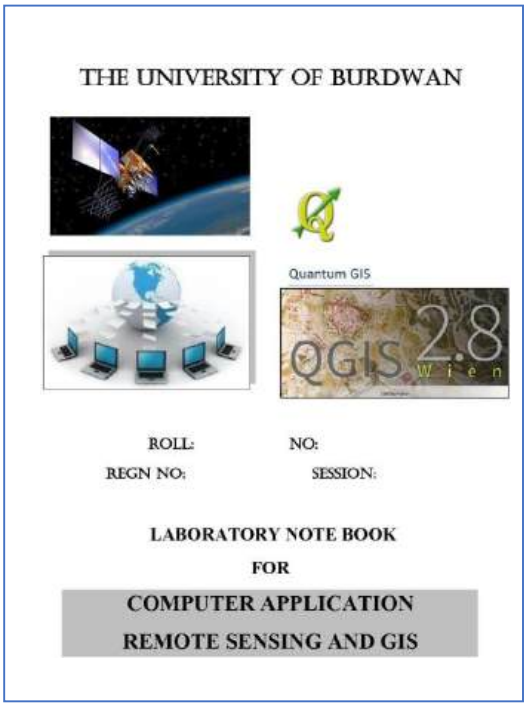
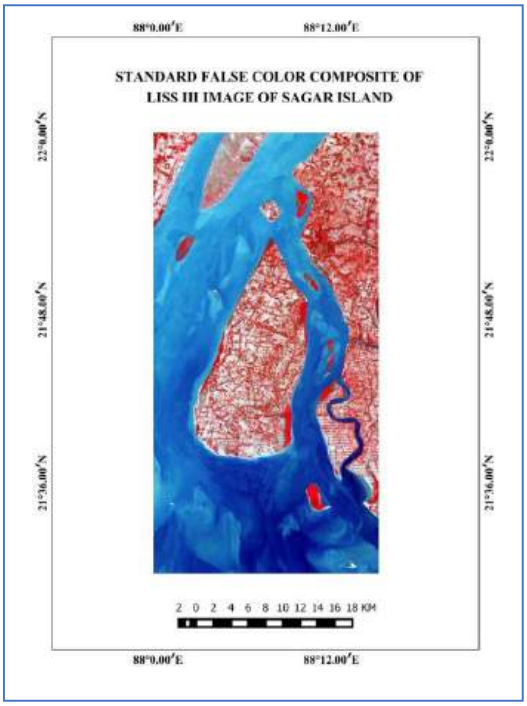
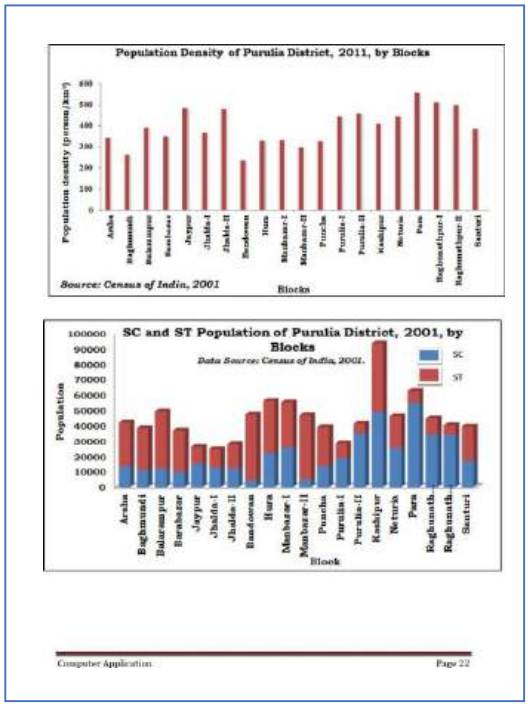


Figure. Sample e-discussion paper for understanding theory of Economic Geography









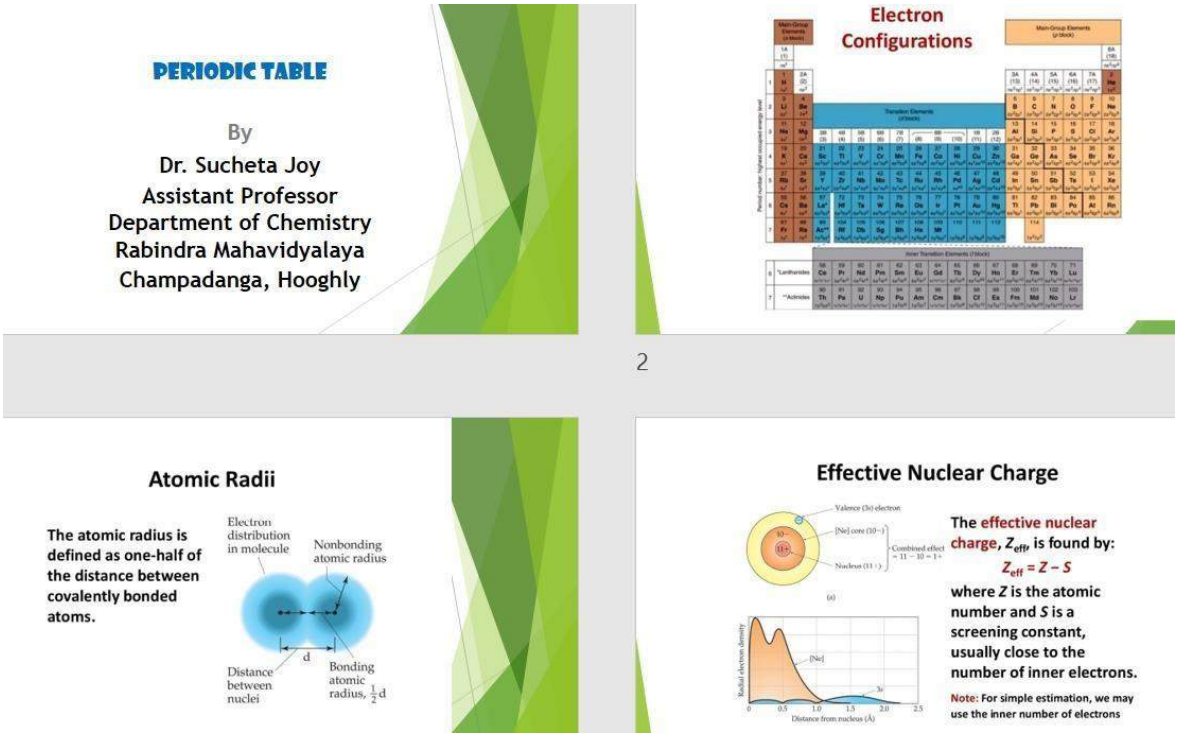
Figures. Students of Geography have done project work using ICT enabled tools

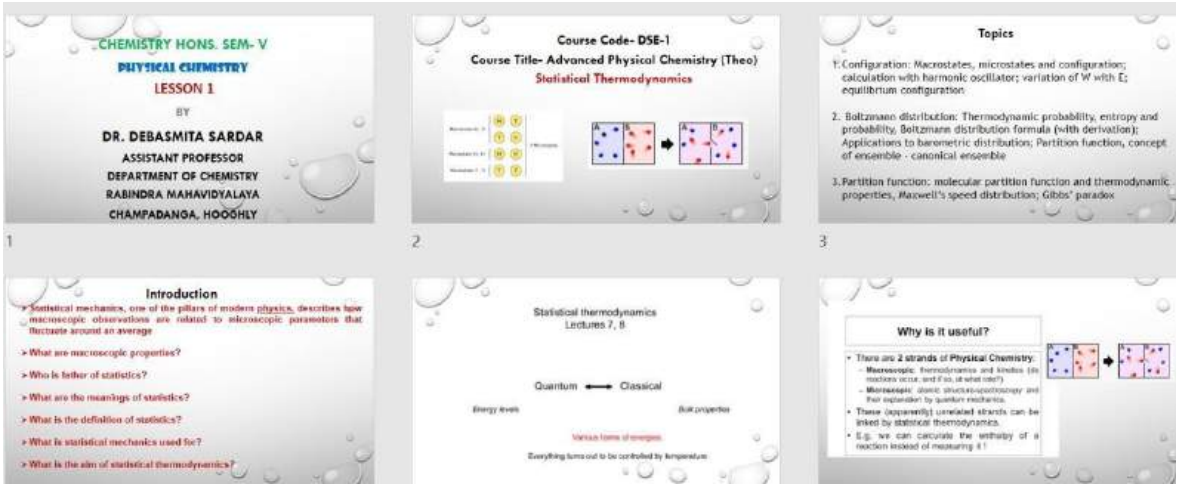
Department of Chemistry (2022-2023)

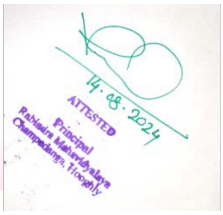
Snapshots/ screenshots of E-resources and techniques used

Screenshot (sample) of Resources

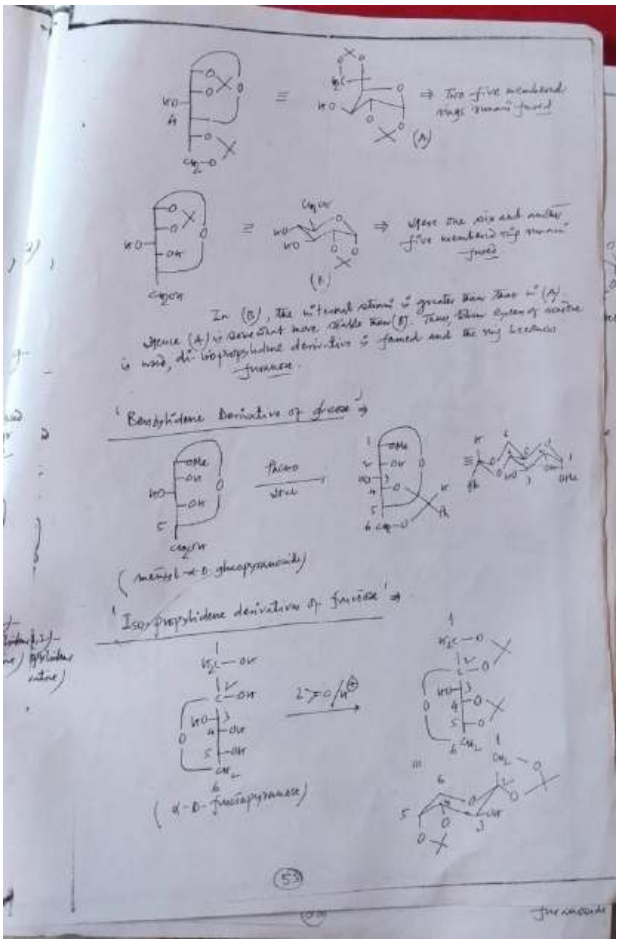
PPT Sample

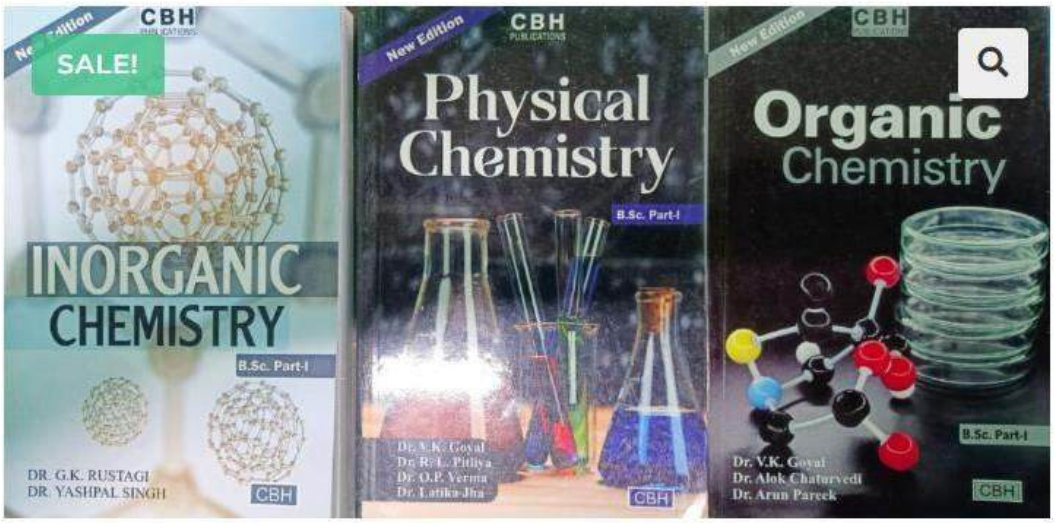


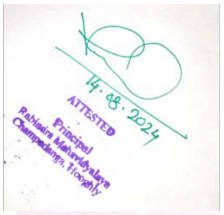




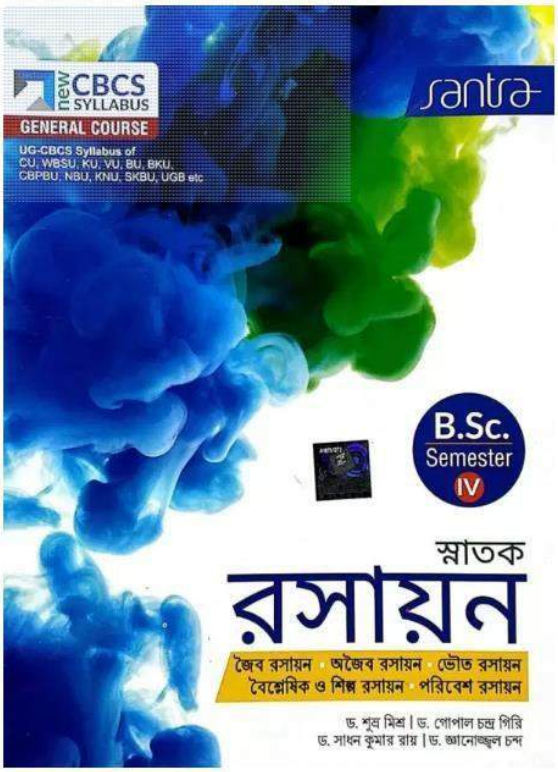
PDF Sample/ Books



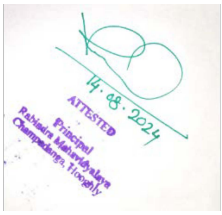




Bengali book for general students



ICT Classes



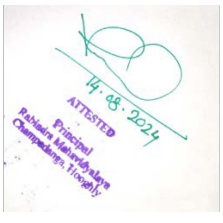
Class taken by Dr. Sucheta Joy, Assistant Professor, Department of Chemistry

Class taken by Dr. Debasmita Sardar, Assistant Professor, Department of Chemistry

Class taken by Dr. Rabiul Alam, Assistant Professor, Department of Chemistry

Session 2021-22

Teachers use ICT enabled tools for effective teaching-learning process.



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Estd.- 1971

Ref. No.....

Date.....

This is to certify that the following ICT enabled tools for effective teaching-learning process was used by the various Departments in the session 2021-2022 at Rabindra Mahavidyalaya, Champadanga, Hooghly, West Bengal

Principal
Rabindra Mahavidyalaya
Champadanga • Hooghly

Dr. Prasanta Bhattacharyya
Principal

ATTESTED
14.08.2024
Principal
Rabindra Mahavidyalaya
Champadanga, Hooghly

Session 2021-22

Teachers use ICT enabled tools for effective teaching-learning process.

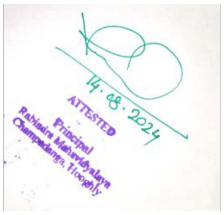
Due to Covid-19 entire teaching learning was switched to online mode. Google Meet, Zoom, etc were used for teaching through. desktop, Laptop. Smart Phone etc. Video, PPT, PDF, excel, etc files were shared for study material. E-Journals and e-books were used for effective teaching and learning.

Some screenshots of the same are attached here.

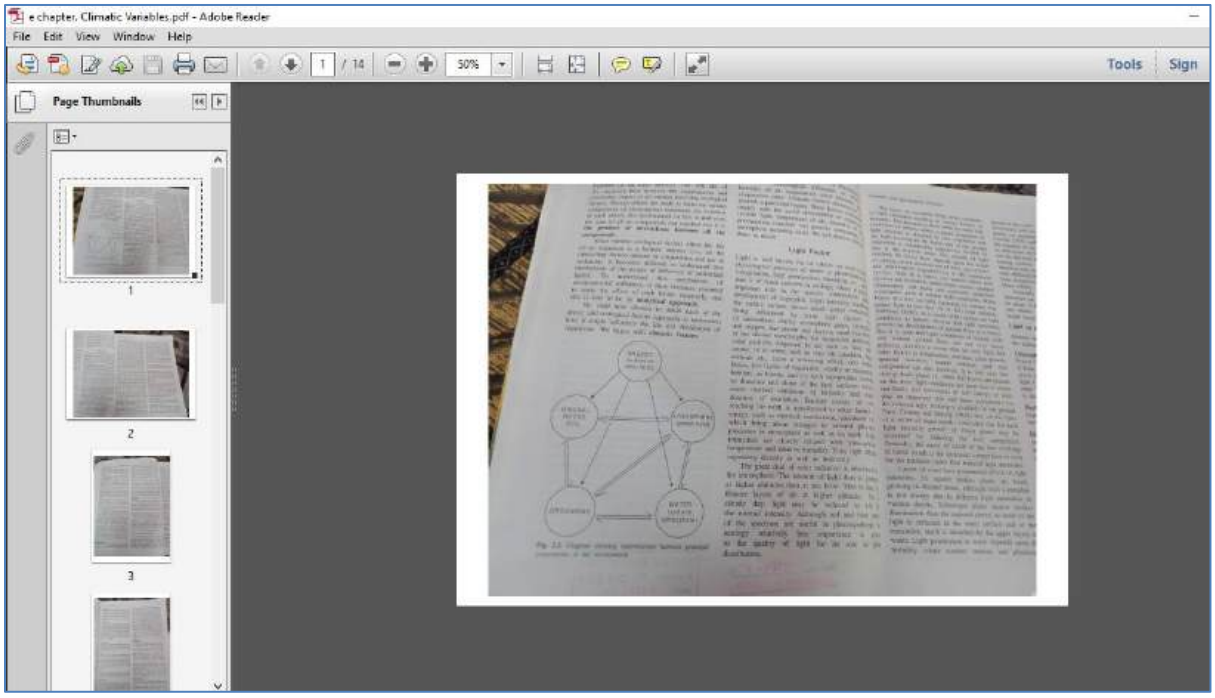
Department of Botany (2021-2022)

Snapshots/ screenshots of E-resources and techniques used

Screenshot (sample) of E- Journal Resource



PDF Sample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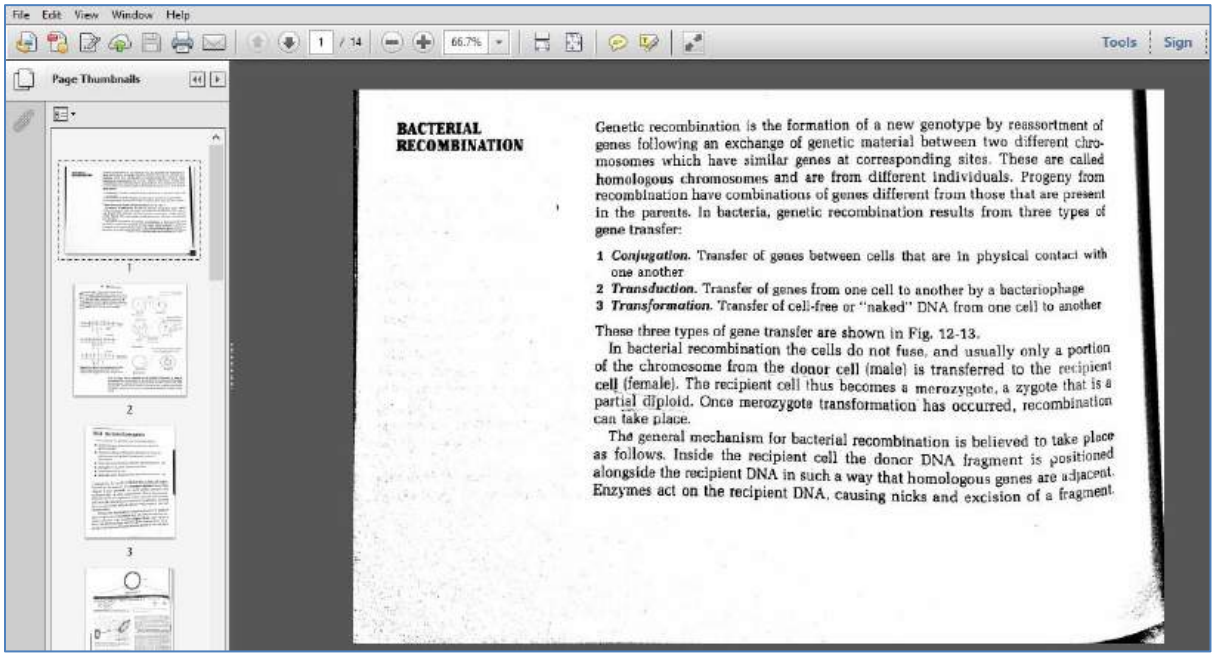
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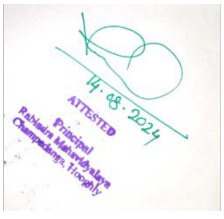
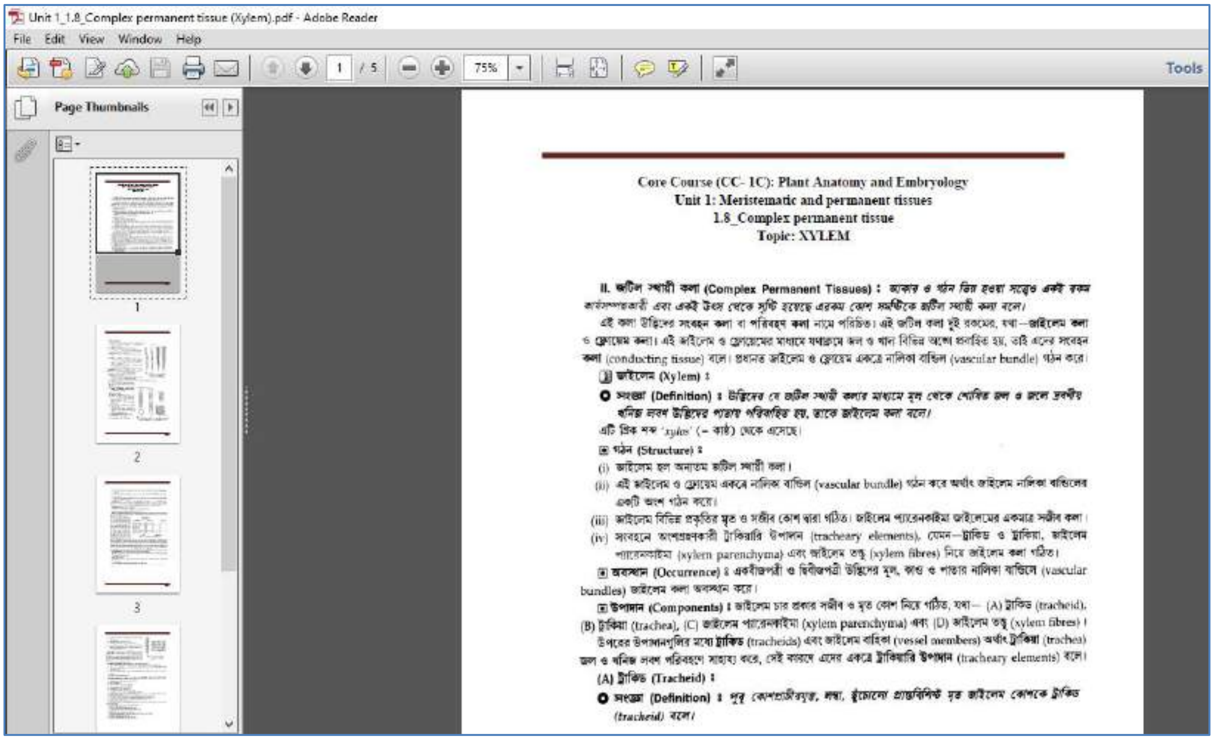
Tools
Sign
BACTERIAL RECOMBINATION
Genetic recombination is the formation of a new genotype by reassortment of genes following an exchange of genetic material between two different chromosomes which have similar genes at corresponding sites. These are called homologous chromosomes and are from different individuals. Progeny from recombination have combinations of genes different from those that are present in the parents. In bacteria, genetic recombination results from three types of gene transfer:
1 Conjugation. Transfer of genes between cells that are in physical contact with one another
2 Transduction. Transfer of genes from one cell to another by a bacteriophage
3 Transformation. Transfer of cell-free or "naked" DNA from one cell to another
These three types of gene transfer are shown in Fig. 12-13.
In bacterial recombination the cells do not fuse, and usually only a portion of the chromosome from the donor cell (male) is transferred to the recipient cell (female). The recipient cell thus becomes a merozygote, a zygote that is a partial diploid. Once merozygote transformation has occurred, recombination can take place.
The general mechanism for bacterial recombination is believed to take place as follows. Inside the recipient cell the donor DNA fragment is positioned alongside the recipient DNA in such a way that homologous genes are adjacent. Enzymes act on the recipient DNA, causing nicks and excision of a fragment.


14.08.2024
ATTESTED
Principal



Core Course (CC- 1C): Plant Anatomy and Embryology
Unit 1: Meristematic and permanent tissues
1.8_Complex permanent tissue
Topic: XYLEM

II. জটিল স্থায়ী কলা (Complex Permanent Tissues) : *আকার ও গঠন ভিন্ন হওয়া সত্ত্বেও একই রকম কার্যসম্পাদনকারী এবং একই উৎস থেকে সৃষ্টি হয়েছে এরকম কোশ সমষ্টিকে জটিল স্থায়ী কলা বলে।*

এই কলা উদ্ভিদের সংবহন কলা বা পরিবহণ কলা নামে পরিচিত। এই জটিল কলা দুই রকমের, যথা—জাইলেম কলা ও ফ্লোয়েম কলা। এই জাইলেম ও ফ্লোয়েমের মাধ্যমে যথাক্রমে জল ও খাদ্য বিভিন্ন অংশে প্রবাহিত হয়, তাই এদের সংবহন কলা (conducting tissue) বলে। প্রধানত জাইলেম ও ফ্লোয়েম একত্রে নালিকা বান্ডিল (vascular bundle) গঠন করে।

[i] জাইলেম (Xylem) :

⭘ সংজ্ঞা (Definition) : *উদ্ভিদের যে জটিল স্থায়ী কলার মাধ্যমে মূল থেকে শোষিত জল ও জলে দ্রবীভূত খনিজ লবণ উদ্ভিদের পাতায় পরিবাহিত হয়, তাকে জাইলেম কলা বলে।*

এটি গ্রিক শব্দ '*xylos*' (= কাষ্ঠ) থেকে এসেছে।

▣ গঠন (Structure) :

(i) জাইলেম হল অন্যতম জটিল স্থায়ী কলা।
(ii) এই জাইলেম ও ফ্লোয়েম একত্রে নালিকা বান্ডিল (vascular bundle) গঠন করে অর্থাৎ জাইলেম নালিকা বান্ডিলের একটি অংশ গঠন করে।
(iii) জাইলেম বিভিন্ন প্রকৃতির মৃত ও সজীব কোশ দ্বারা গঠিত। জাইলেম প্যারেনকাইমা জাইলেমের একমাত্র সজীব কলা।
(iv) সংবহনে অংশগ্রহণকারী ট্রাকিয়ারি উপাদান (tracheary elements), যেমন—ট্রাকিড ও ট্রাকিয়া, জাইলেম প্যারেনকাইমা (xylem parenchyma) এবং জাইলেম তন্তু (xylem fibres) নিয়ে জাইলেম কলা গঠিত।

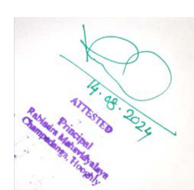
▣ অবস্থান (Occurrence) : একবীজপত্রী ও দ্বিবীজপত্রী উদ্ভিদের মূল, কাণ্ড ও পাতার নালিকা বান্ডিলে (vascular bundles) জাইলেম কলা অবস্থান করে।

▣ উপাদান (Components) : জাইলেম চার প্রকার সজীব ও মৃত কোশ নিয়ে গঠিত, যথা— (A) ট্রাকিড (tracheid), (B) ট্রাকিয়া (trachea), (C) জাইলেম প্যারেনকাইমা (xylem parenchyma) এবং (D) জাইলেম তন্তু (xylem fibres)।

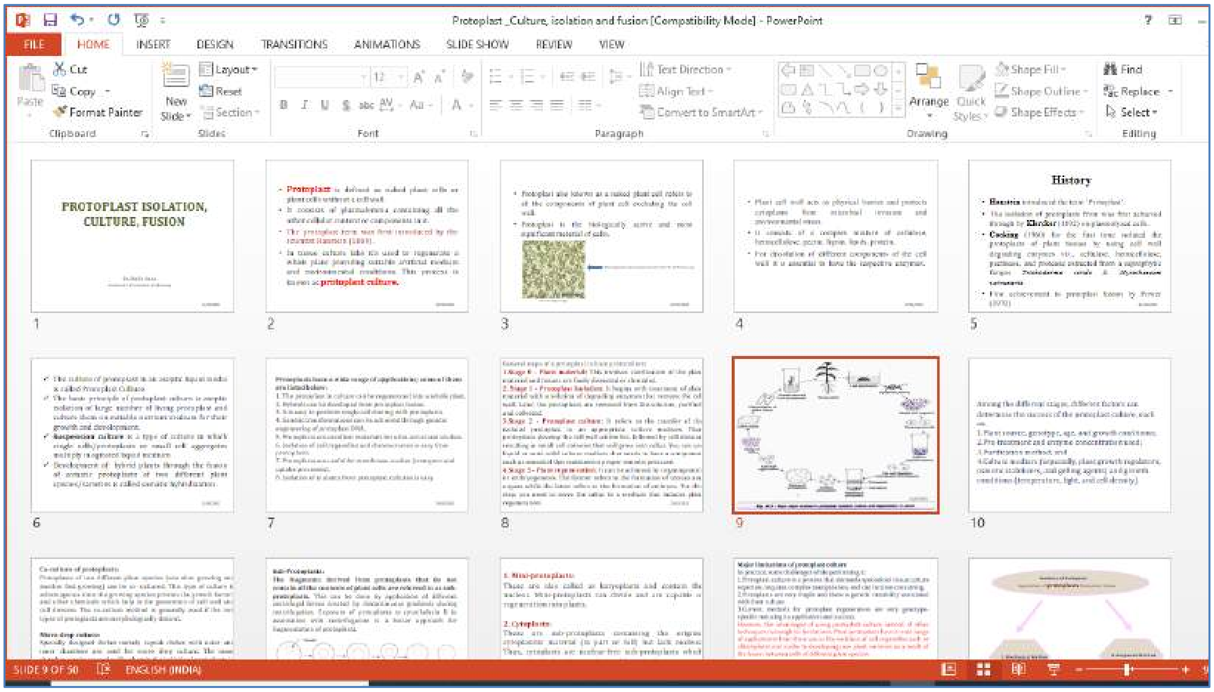
উপরের উপাদানগুলির মধ্যে **ট্রাকিড** (tracheids) এবং জাইলেম বাহিকা (vessel members) অর্থাৎ **ট্রাকিয়া** (trachea) জল ও খনিজ লবণ পরিবহণে সাহায্য করে, সেই কারণে এদের একত্রে **ট্রাকিয়ারি উপাদান** (tracheary elements) বলে।

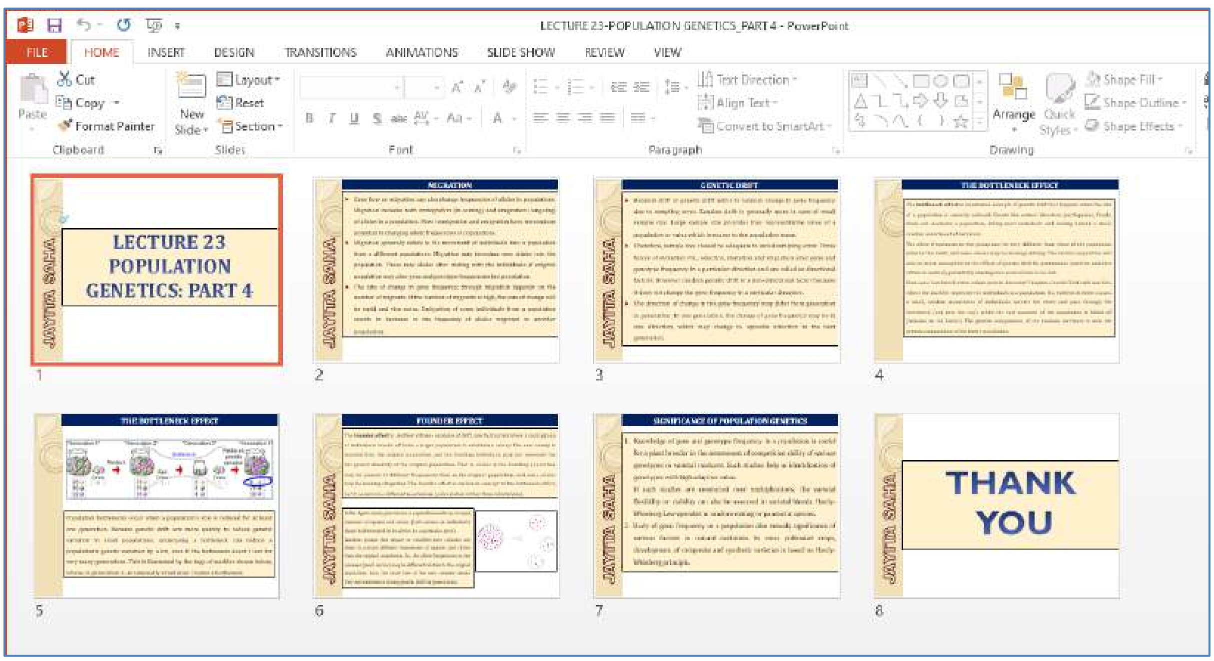
(A) ট্রাকিড (Tracheid) :

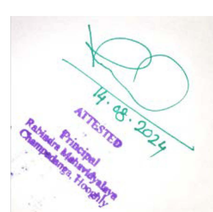
⭘ সংজ্ঞা (Definition) : *পুরু কোশপ্রাচীরযুক্ত, লম্বা, ছুঁচোলো প্রান্তবিশিষ্ট মৃত জাইলেম কোশকে ট্রাকিড (tracheid) বলে।*



PPT. Sample


Protoplast _Culture, isolation and fusion [Compatibility Mode] - PowerPoint
PROTOPLAST ISOLATION, CULTURE, FUSION
History
SLIDE 9 OF 50
ENGLISH (INDIA)


LECTURE 23-POPULATION GENETICS_PART 4 - PowerPoint
LECTURE 23
POPULATION
GENETICS: PART 4
JAYITA SAHA
MIGRATION
GENETIC DRIFT
THE BOTTLENECK EFFECT
FOUNDER EFFECT
SIGNIFICANCE OF POPULATION GENETICS
THANK
YOU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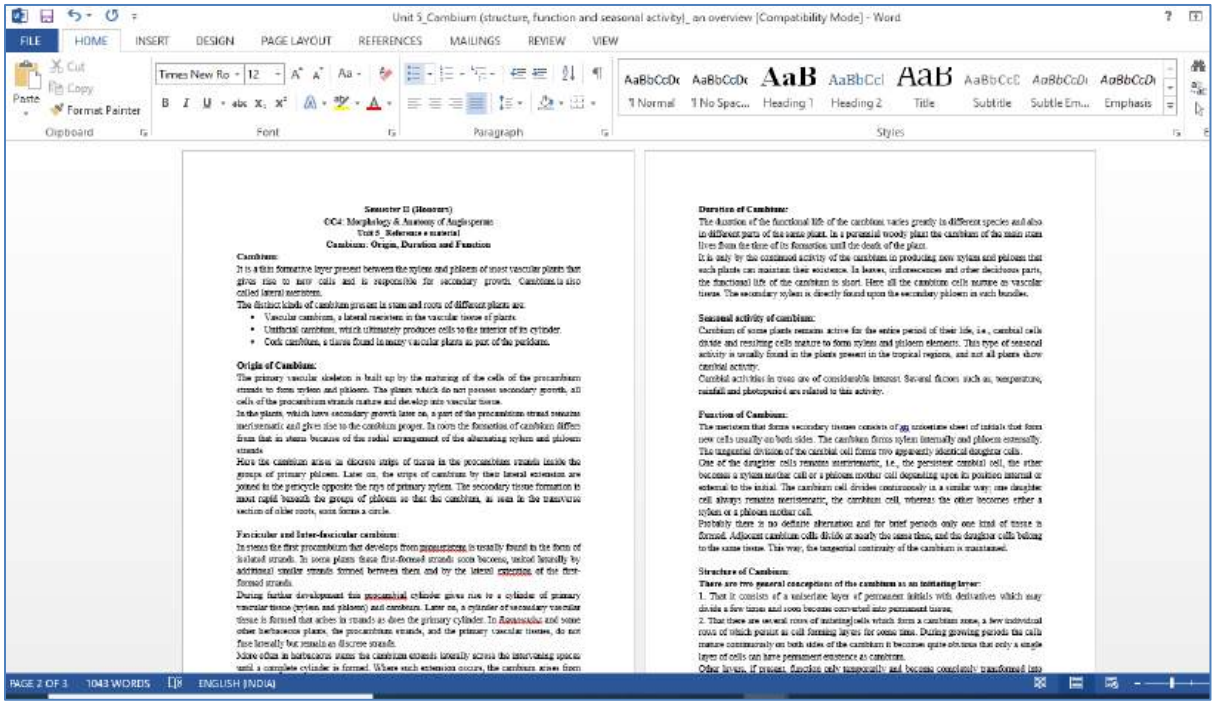
Word Doc. Sample



Unit 5_Cambium (structure, function and seasonal activity)_ an overview [Compatibility Mode] - Word

Semester II (Honours)
CC4: Morphology & Anatomy of Angiosperms
Unit 5 : Reference material
Cambium: Origin, Duration and Function

Cambium:
It is a thin formative layer present between the xylem and phloem of most vascular plants that gives rise to new cells and is responsible for secondary growth. Cambium is also called lateral meristem.
The distinct kinds of cambium present in stem and roots of different plants are.

- Vascular cambium, a lateral meristem in the vascular tissue of plants.
- Unifacial cambium, which ultimately produces cells to the interior of its cylinder.
- Cork cambium, a tissue found in many vascular plants as part of the periderm.

Origin of Cambium:
The primary vascular skeleton is built up by the maturing of the cells of the procambium strands to form xylem and phloem. The plants which do not possess secondary growth, all cells of the procambium strands mature and develop into vascular tissue.
In the plants, which have secondary growth later on, a part of the procambium strand remains meristematic and gives rise to the cambium proper. In roots the formation of cambium differs from that in stems because of the radial arrangement of the alternating xylem and phloem strands.
Here the cambium arises as discrete strips of tissue in the procambium strands inside the groups of primary phloem. Later on, the strips of cambium by their lateral extension are joined in the pericycle opposite the rays of primary xylem. The secondary tissue formation is most rapid beneath the groups of phloem so that the cambium, as seen in the transverse section of older roots, soon forms a circle.

Fascicular and Inter-fascicular cambium:
In stems the first procambium that develops from promeristem is usually found in the form of isolated strands. In some plants these first-formed strands soon become, united laterally by additional similar strands formed between them and by the lateral extension of the first-formed strands.
During further development this procambial cylinder gives rise to a cylinder of primary vascular tissue (xylem and phloem) and cambium. Later on, a cylinder of secondary vascular tissue is formed that arises in strands as does the primary cylinder. In Ranunculus and some other herbaceous plants, the procambium strands, and the primary vascular tissues, do not fuse laterally but remain as discrete strands.
More often in herbaceous stems the cambium extends laterally across the intervening spaces until a complete cylinder is formed. Where such extension occurs, the cambium arises from

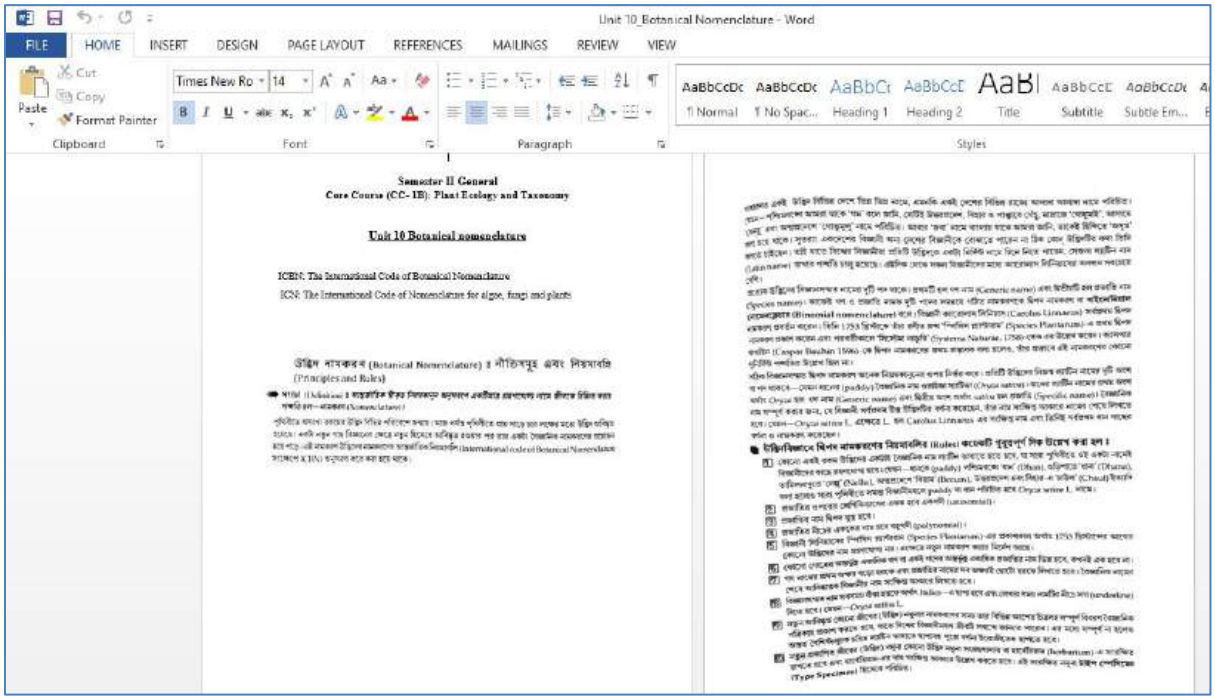
Duration of Cambium:
The duration of the functional life of the cambium varies greatly in different species and also in different parts of the same plant. In a perennial woody plant the cambium of the main stem lives from the time of its formation until the death of the plant.
It is only by the continued activity of the cambium in producing new xylem and phloem that such plants can maintain their existence. In leaves, inflorescences and other deciduous parts, the functional life of the cambium is short. Here all the cambium cells mature as vascular tissue. The secondary xylem is directly found upon the secondary phloem in such bundles.

Seasonal activity of cambium:
Cambium of some plants remains active for the entire period of their life, i.e., cambial cells divide and resulting cells mature to form xylem and phloem elements. This type of seasonal activity is usually found in the plants present in the tropical regions, and not all plants show cambial activity.
Cambial activities in trees are of considerable interest. Several factors such as, temperature, rainfall and photoperiod are related to this activity.

Function of Cambium:
The meristem that forms secondary tissues consists of an extensive sheet of initials that form new cells usually on both sides. The cambium forms xylem internally and phloem externally. The tangential division of the cambial cell forms two apparently identical daughter cells.
One of the daughter cells remains meristematic, i.e., the persistent cambial cell, the other becomes a xylem mother cell or a phloem mother cell depending upon its position internal or external to the initial. The cambium cell divides continuously in a similar way; one daughter cell always remains meristematic, the cambium cell, whereas the other becomes either a xylem or a phloem mother cell.
Probably there is no definite alternation and for brief periods only one kind of tissue is formed. Adjacent cambium cells divide at nearly the same time, and the daughter cells belong to the same tissue. This way, the tangential continuity of the cambium is maintained.

Structure of Cambium:
There are two general conceptions of the cambium as an initiating layer:
1. That it consists of a substantial layer of permanent initials with derivatives which may divide a few times and soon become converted into permanent tissue.
2. That there are several rows of initiating cells which form a cambium zone, a few individual rows of which persist as cell forming layers for some time. During growing periods the cells mature continuously on both sides of the cambium it becomes quite obvious that only a single layer of cells can have permanent existence as cambium.
Other layers, if present, function only temporarily and become constantly transformed into

PAGE 2 OF 3 1043 WORDS ENGLISH (INDIA)



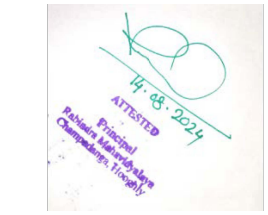
Unit 10_Botanical Nomenclature - Word

Semester II General
Core Course (CC- IB): Plant Ecology and Taxonomy

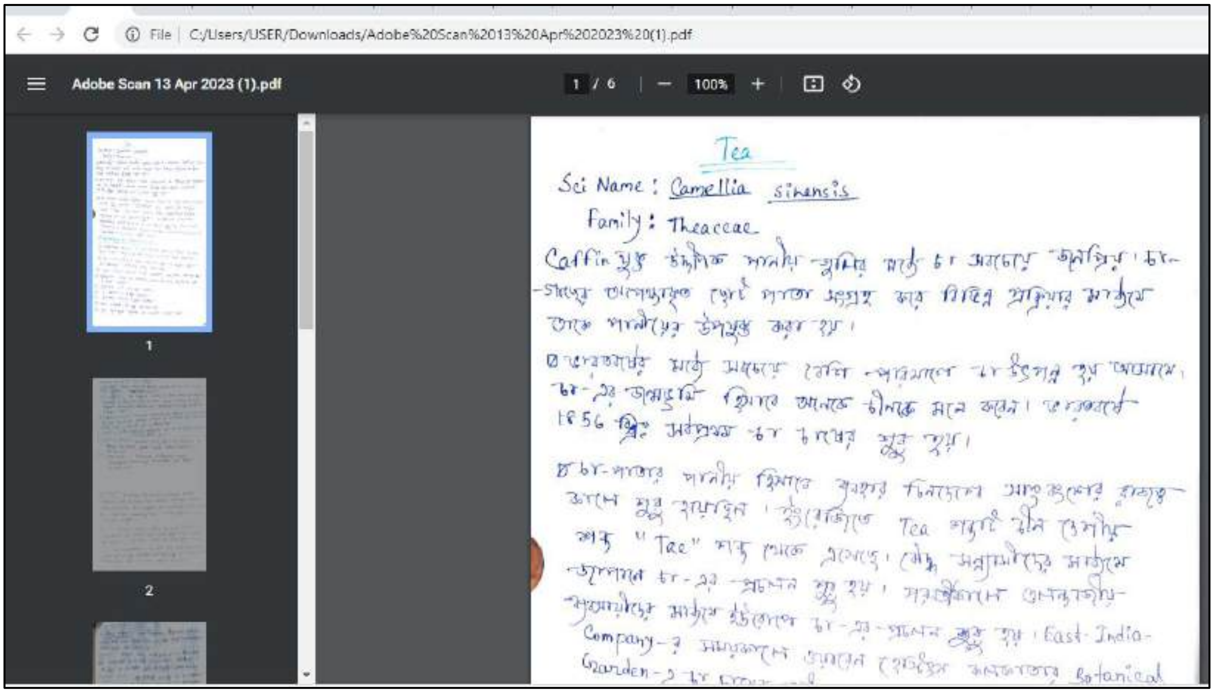
Unit 10 Botanical nomenclature

ICBN: The International Code of Botanical Nomenclature
ICBN: The International Code of Nomenclature for algae, fungi and plants

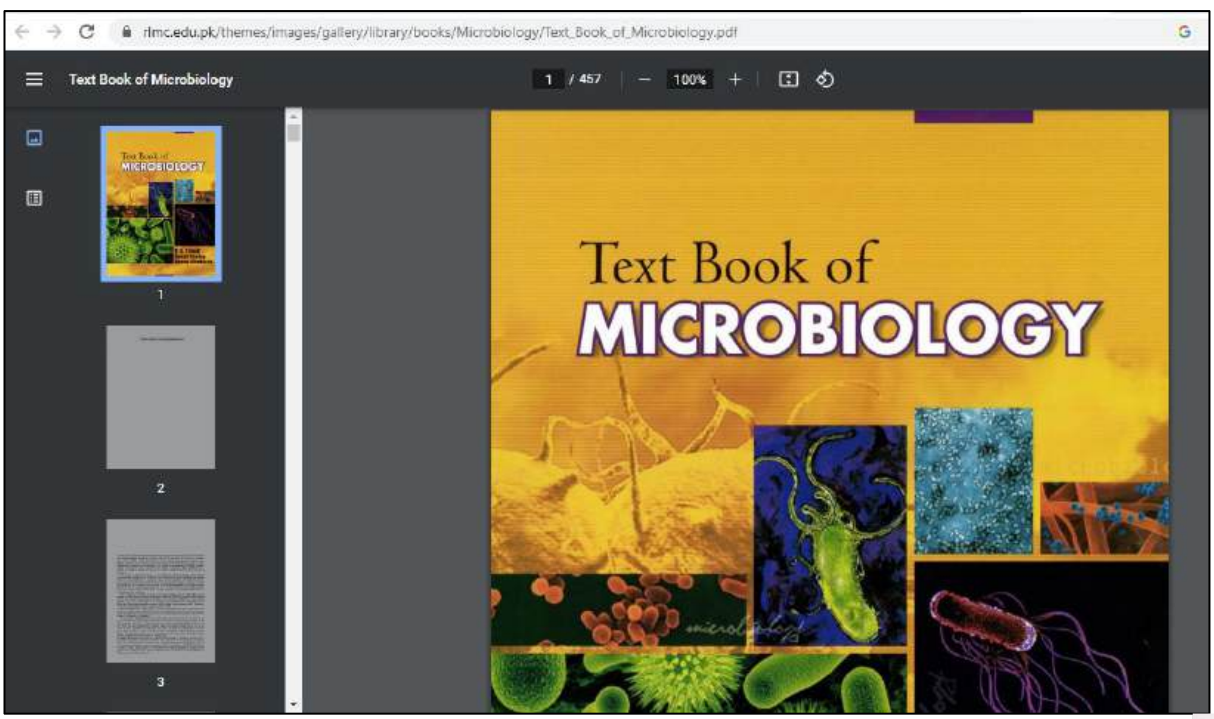
উদ্ভিদ নামকরণ (Botanical Nomenclature) ঃ নীতিসমূহ এবং নিয়মাবলি
(Principles and Rules)



Scanned hand written notes (Sample in Bengali for general stream)



E-Book PDF (Sample)



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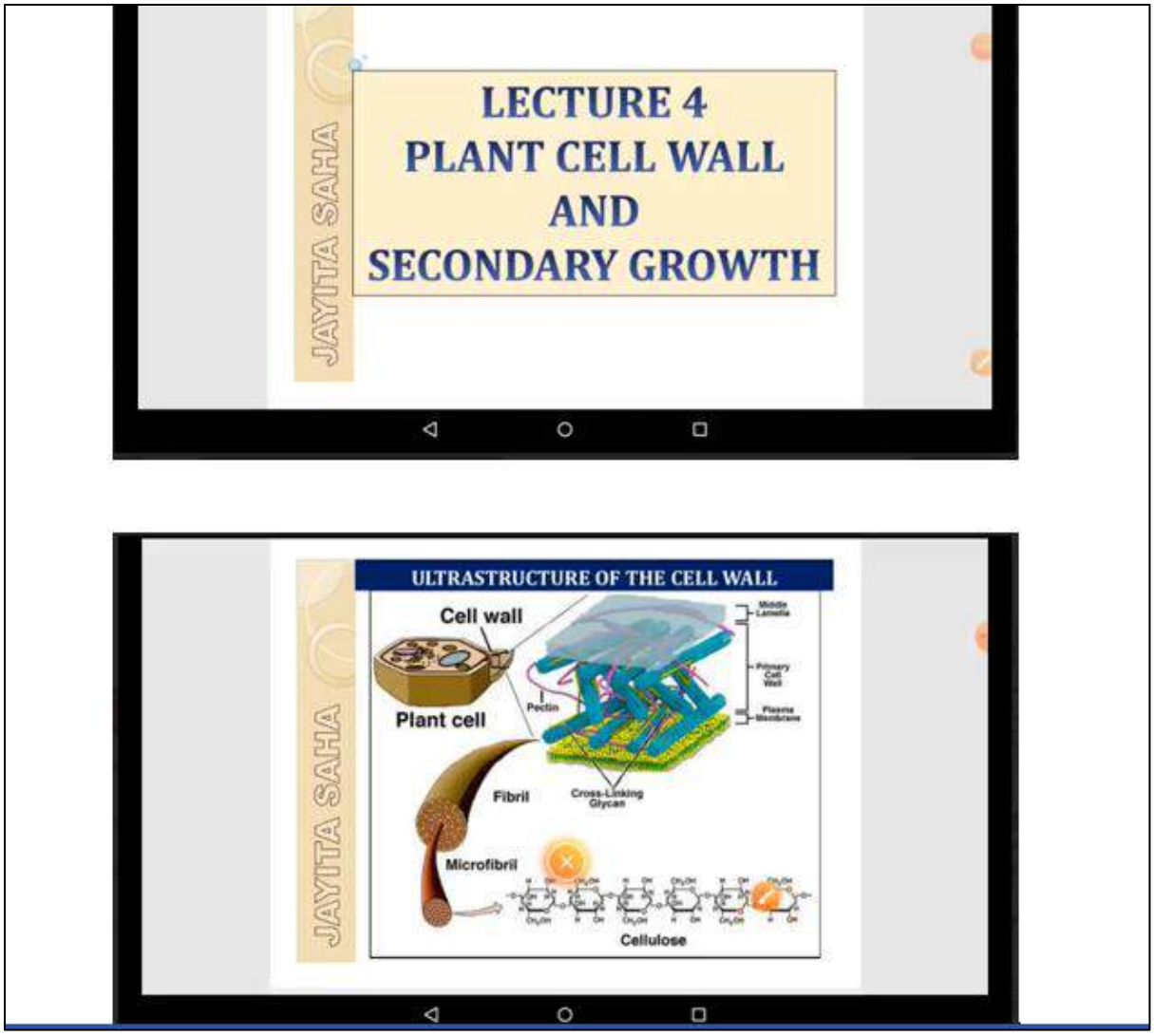
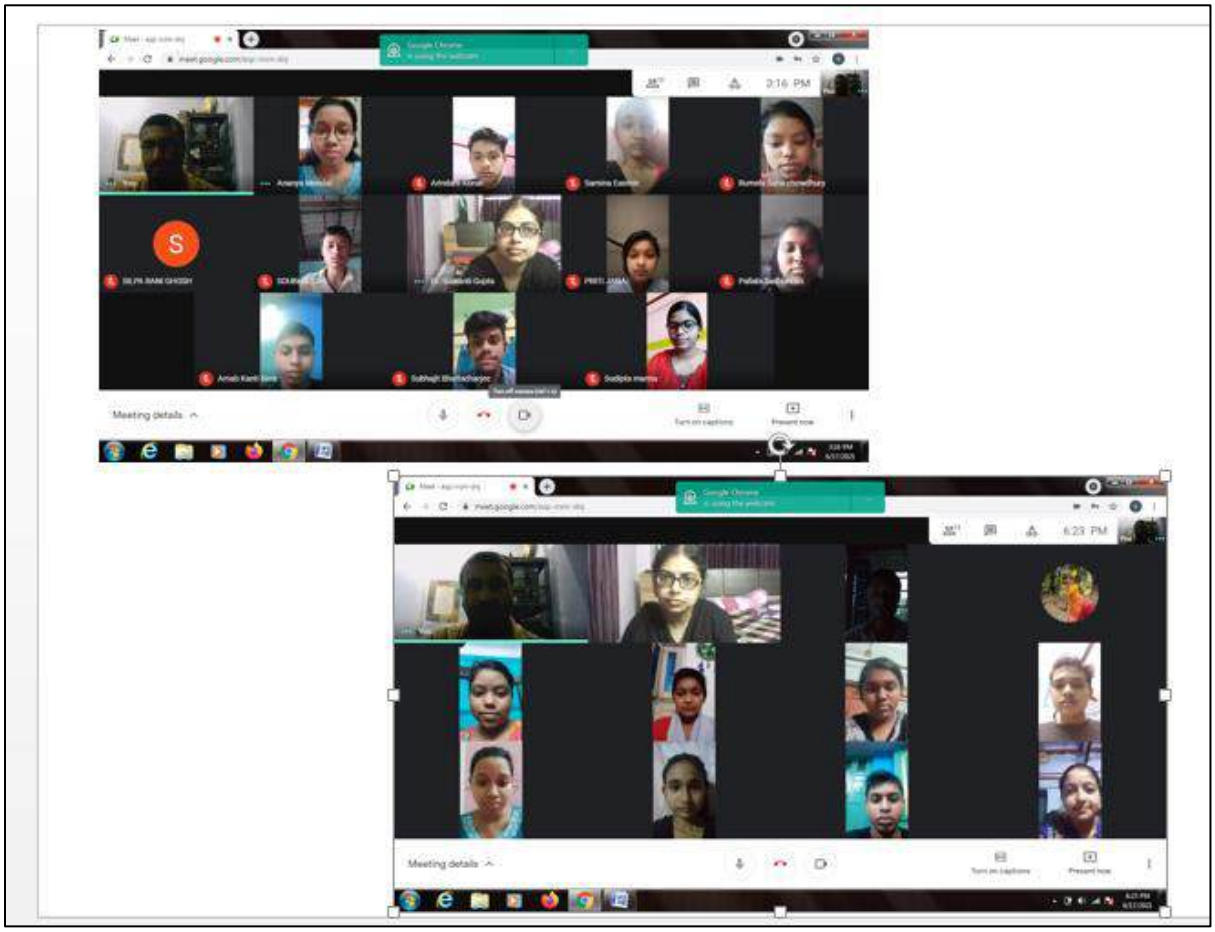
Screenshot of Video (Sample)



Google Meet

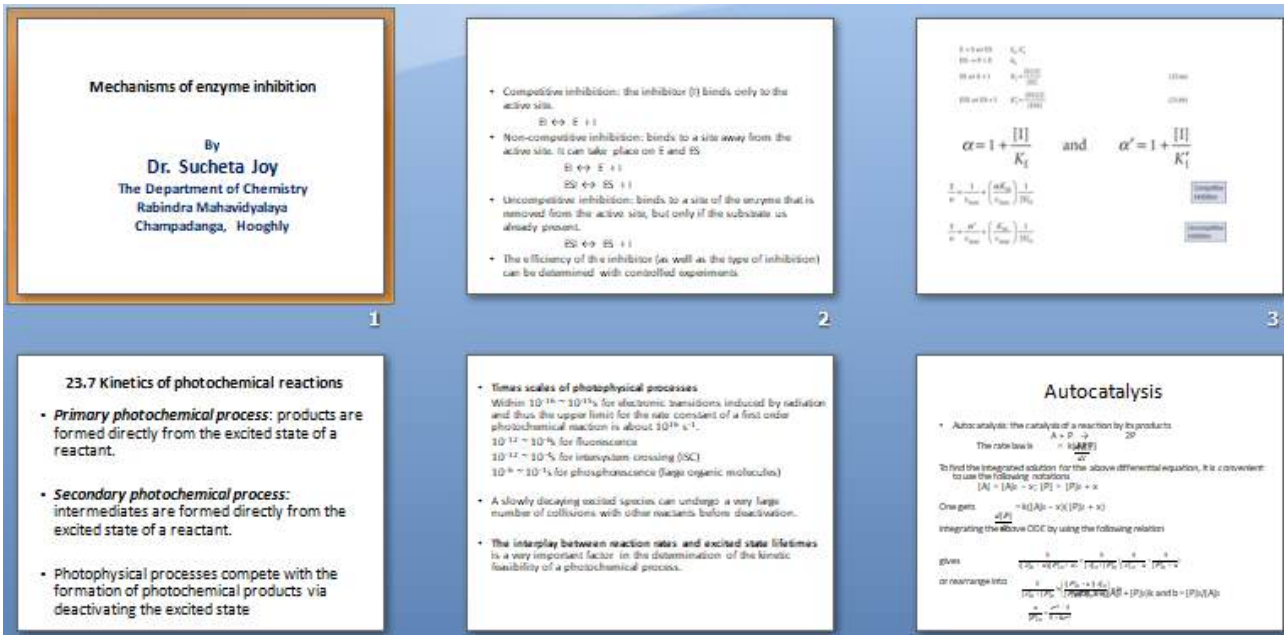


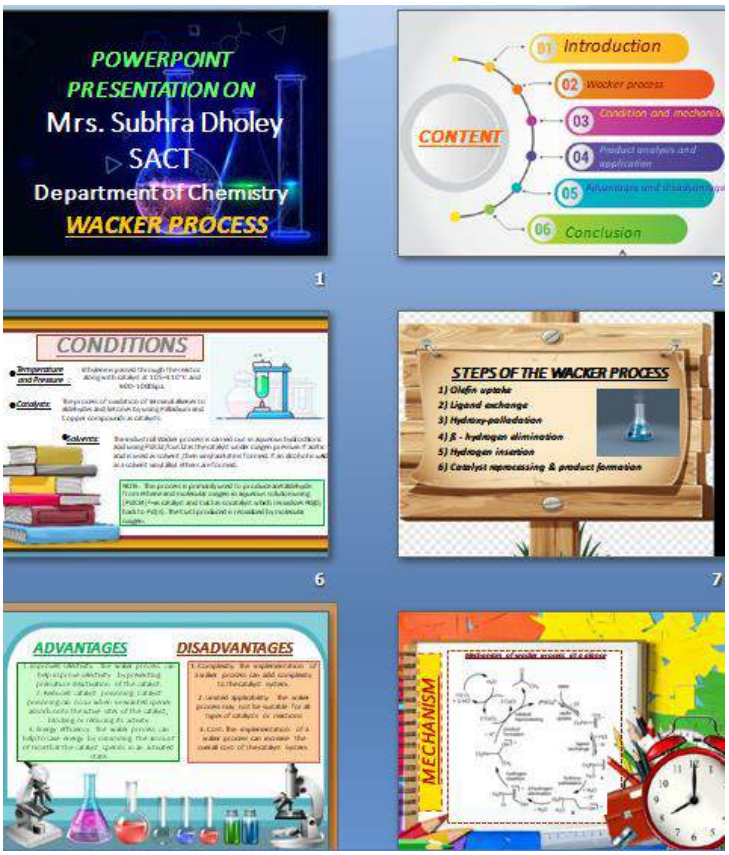
Department of Chemistry (2021-2022)

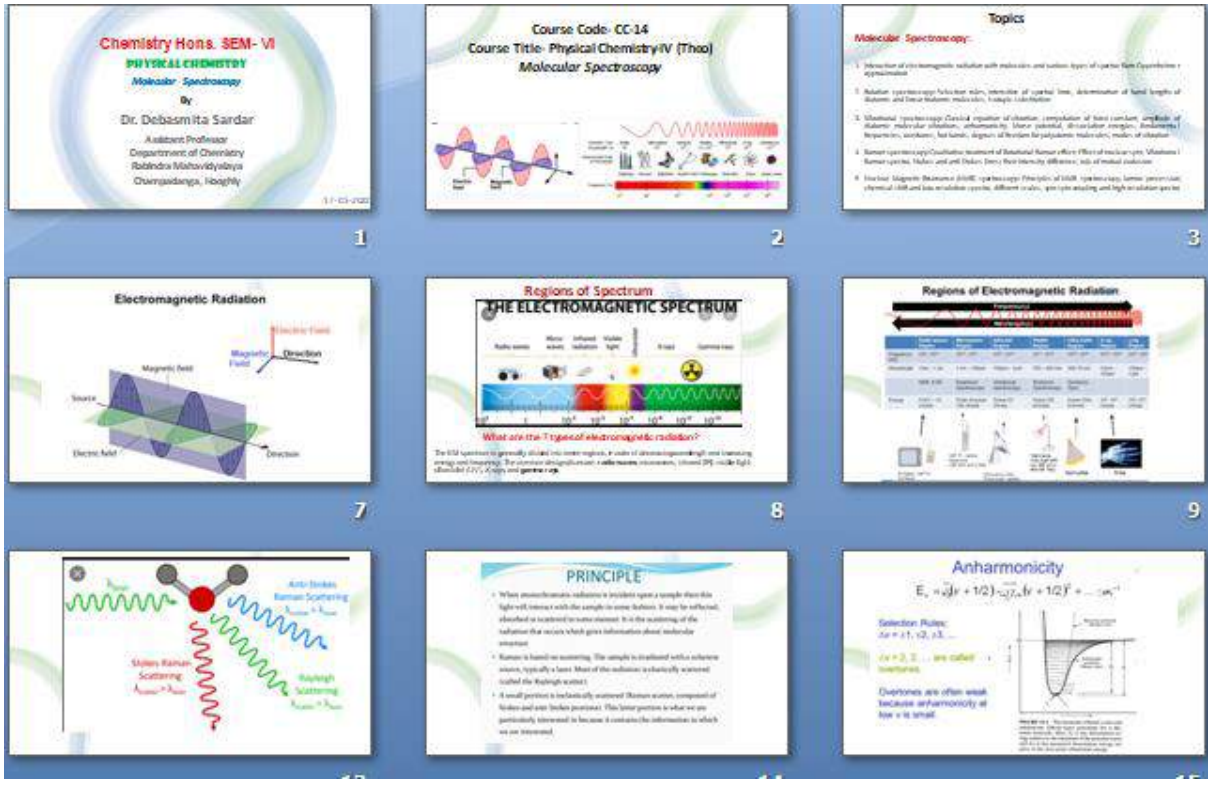
Snapshots/ screenshots of E-resources and techniques used

Screenshot (sample) of Resources

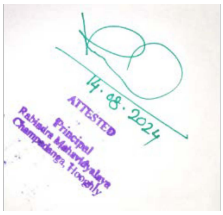
PPT Sample






Chemistry Hons. SEM- VI
PHYSICAL CHEMISTRY
Molecular Spectroscopy
By
Dr. Debasmita Sardar
Assistant Professor
Department of Chemistry
Rabindra Mahavidyalaya
Champadanga, Hooghly
1
Course Code- CC-14
Course Title- Physical Chemistry-IV (Theo)
Molecular Spectroscopy
2
Topics
Molecular Spectroscopy:
3
Electromagnetic Radiation
7
Regions of Spectrum
THE ELECTROMAGNETIC SPECTRUM
What are the 7 types of electromagnetic radiation?
8
Regions of Electromagnetic Radiation
9
Anti-Stokes Raman Scattering
Stokes Raman Scattering
Rayleigh Scattering
PRINCIPLE
Anharmonicity
Selection Rules:
Overtones are often weak because anharmonicity is low


POWER POINT PRESENTATION
ON
" WILKINSON'S CATALYST "
Mr. Tanmoy Pandit
SACT
Department of Chemistry
Rabindra Mahavidyalaya
Champadanga , Hooghly
1
2
INTRODUCTION
3
Wilkinson's Catalyst
6
Properties and Preparation
7
8
APPLICATIONS
ADVANTAGES & DISADVANTAGES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PDF Sample/ Books

TERPENOIDS

1

* Terpenes ⇒ Terpenes are naturally occurring hydrocarbons having a structural relationship with isoprene i.e 2-methyl-1,3-butadiene ($H_2C=C(CH_3)-CH=CH_2$)

Iso prene, itself doesn't occur in nature.

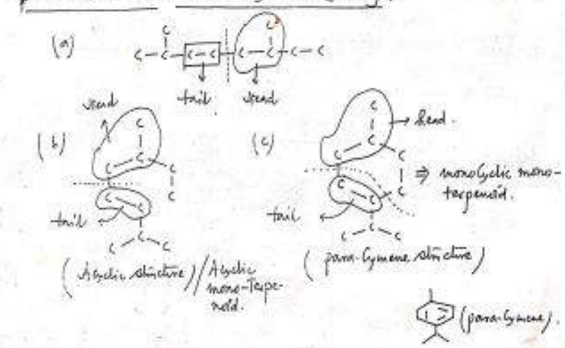
* Terpenoids ⇒ Terpenoids include hydrocarbons as well as their oxygenated derivatives such as alcohols, aldehydes, ketones etc.

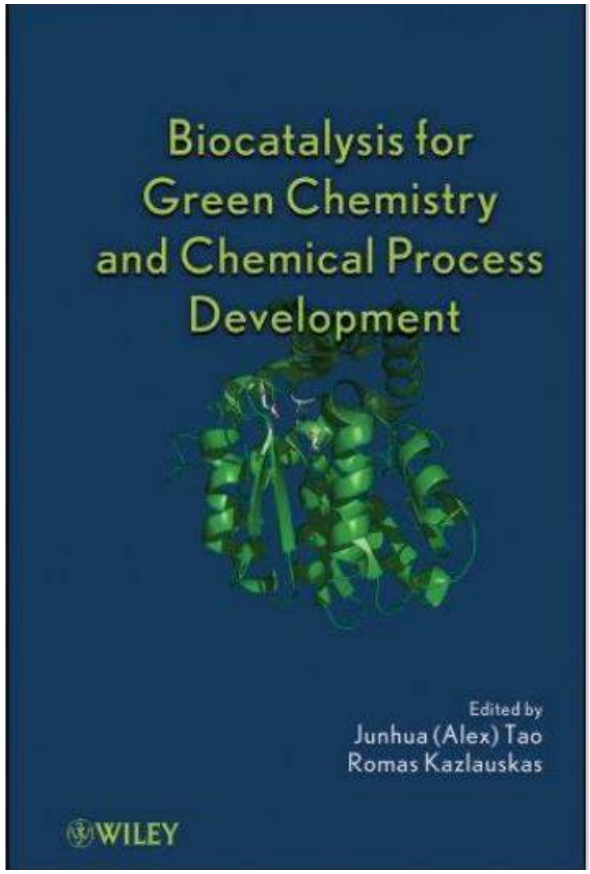
Most of the terpenoids are unsaturated acyclic or cyclic compounds.

* Iso-prene rule ⇒ Thermal decomposition of almost all terpenoids produces iso-prene as one of the products and the skeleton structure of all naturally occurring terpenoids can be constructed by joining iso-prene units as required following head to tail connection.

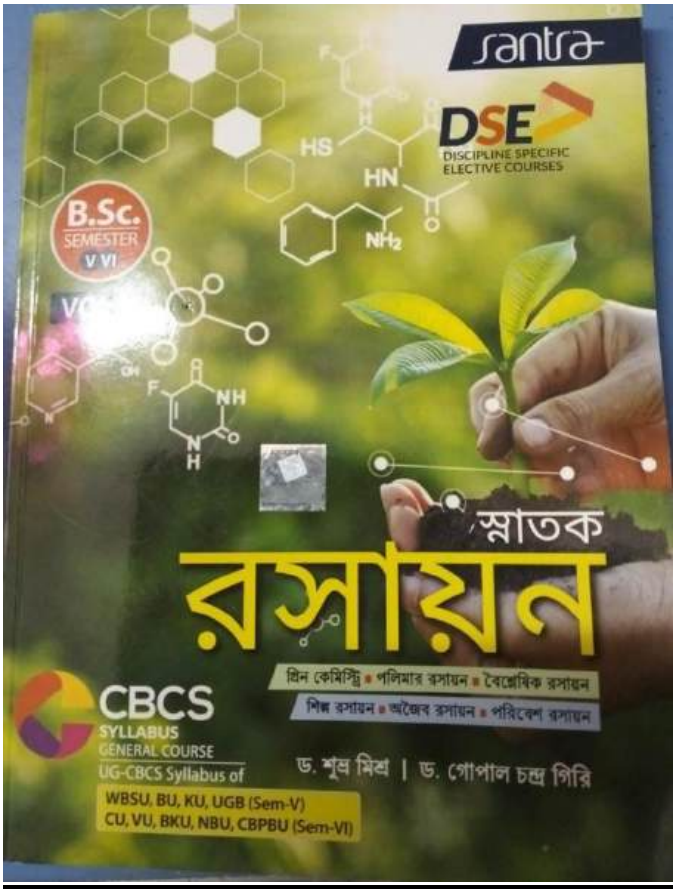
$H_2C=C(CH_3)-CH=CH_2$ / structural skeleton ⇒

* Head to tail connectivity in the following ⇒

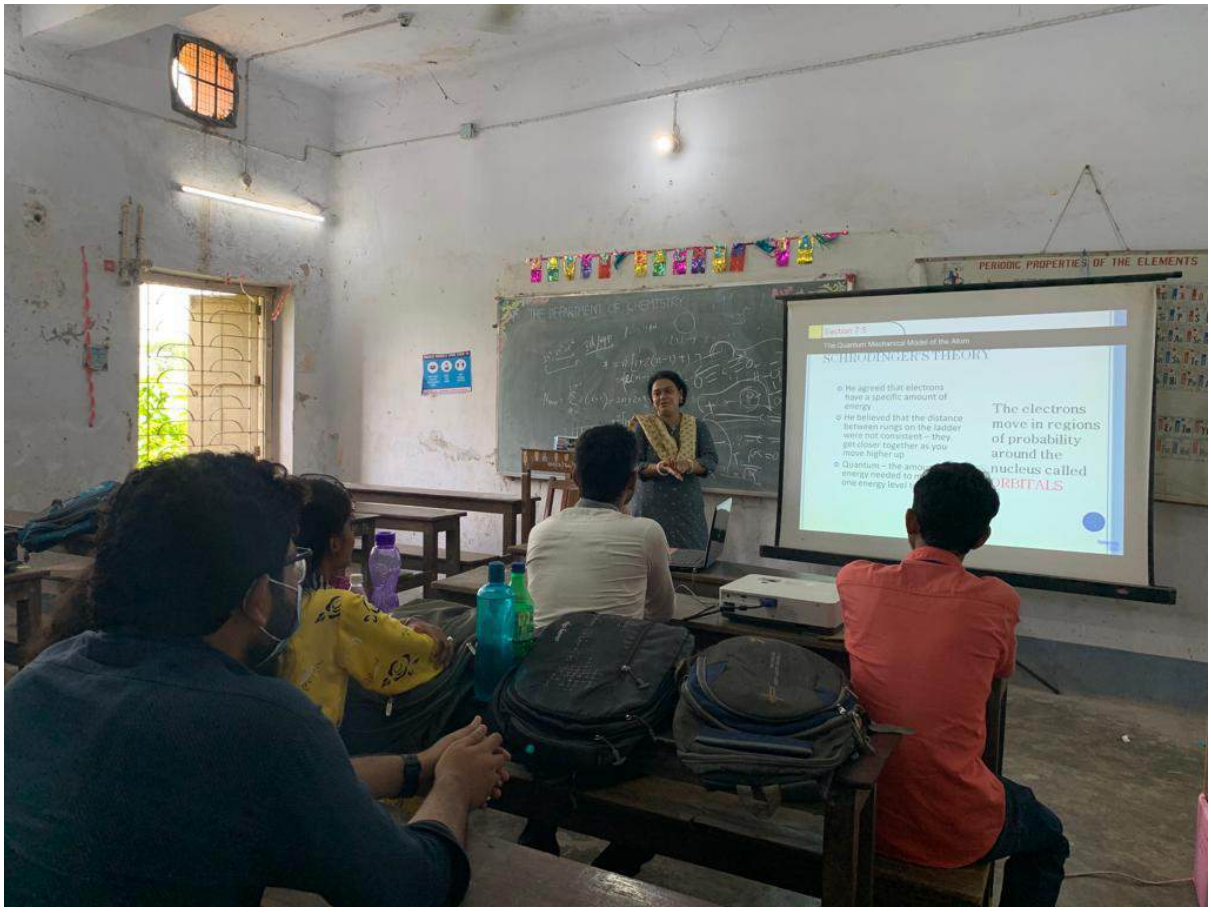




Bengali book for general students



ICT Classes



Class taken by Dr. Sucheta Joy, Assistant Professor, department of Chemistry

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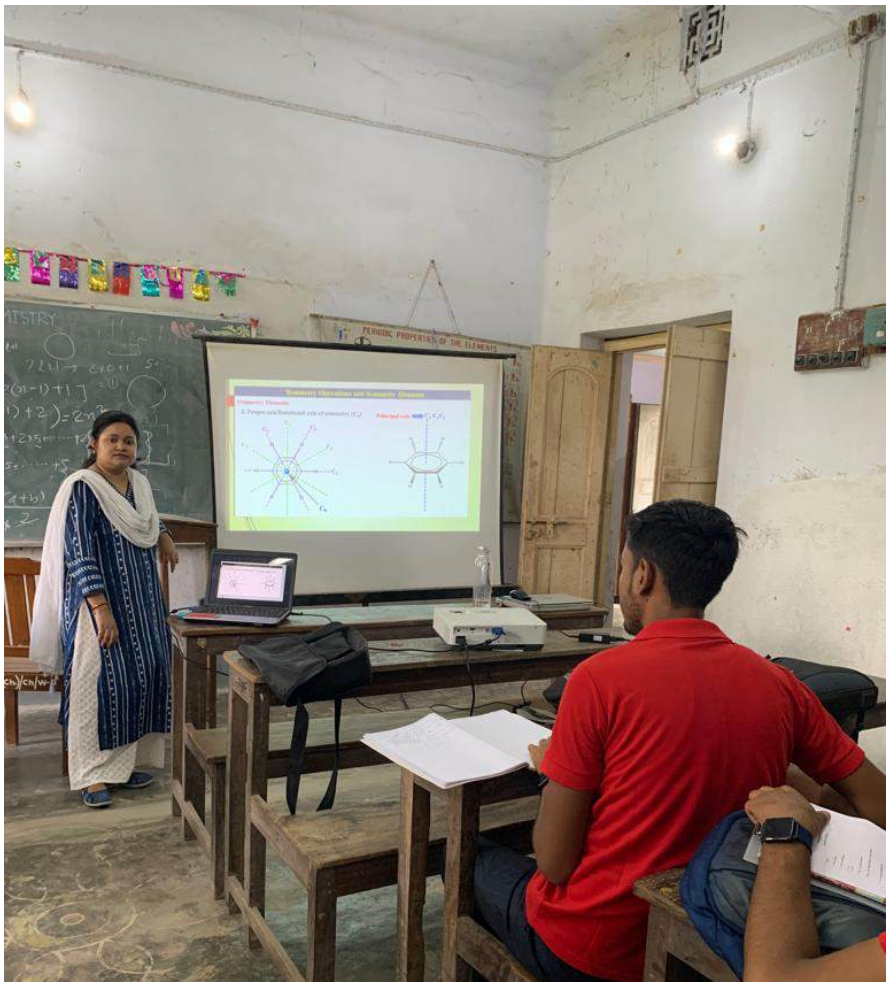
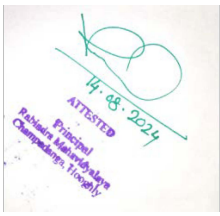
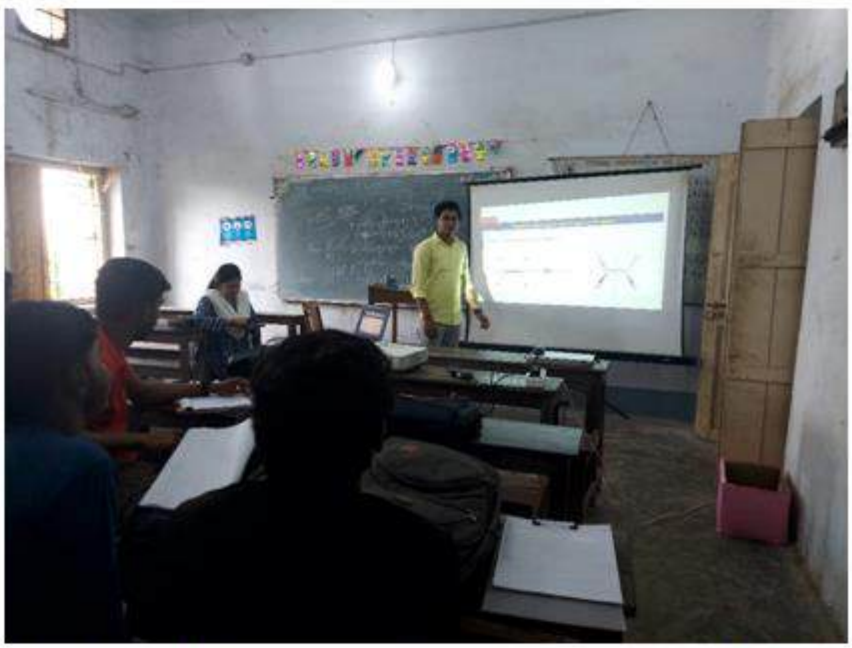
Class taken by Dr. Rabiul Alam, Assistant Professor, department of Chemistry





Class taken by Dr. Debasmita Sardar, Assistant Professor, department of Chemistry



Class taken by Mr. Tanmoy Pandit, SACT, department of Chemistry

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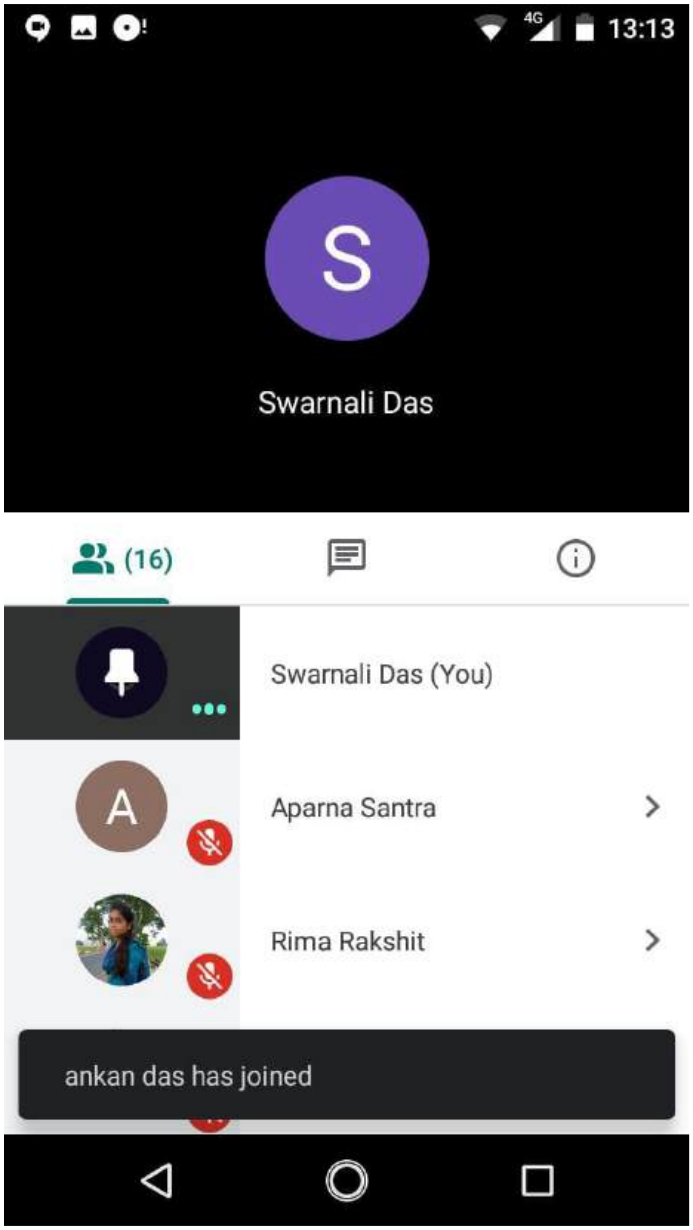
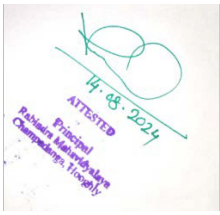
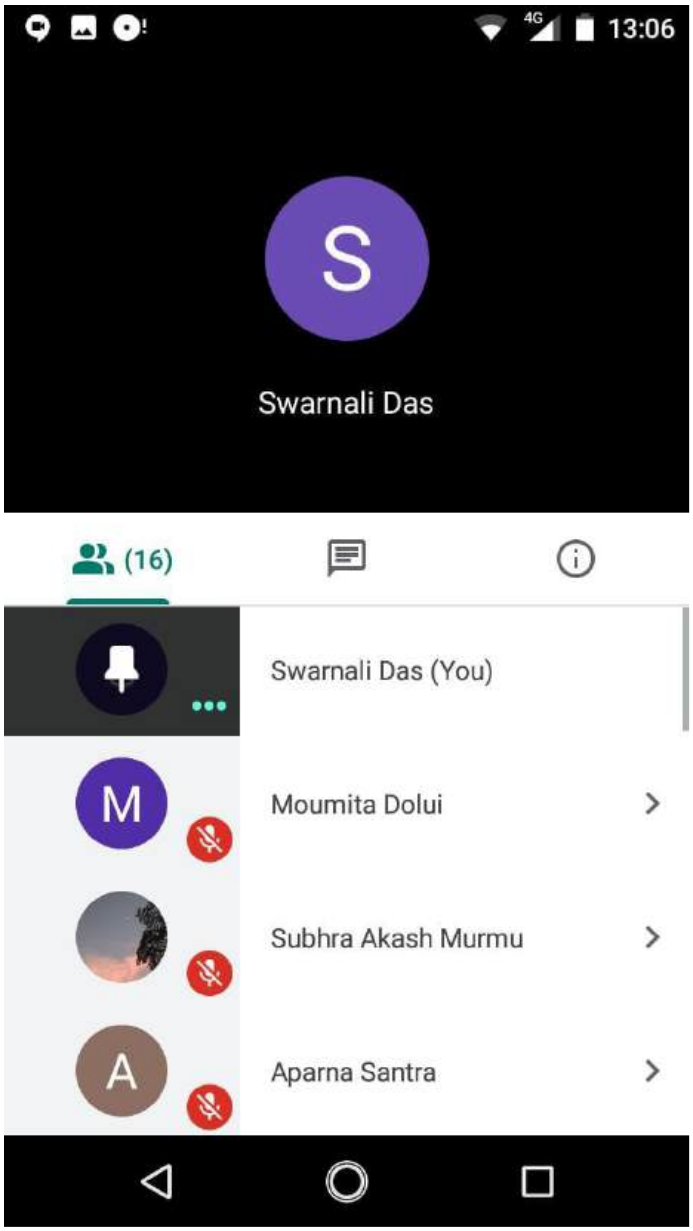
Class taken by Mrs. Subhra Dholey, SACT, department of Chemistry

Department of Political Science

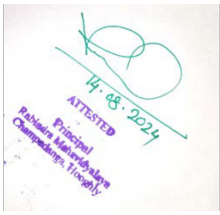


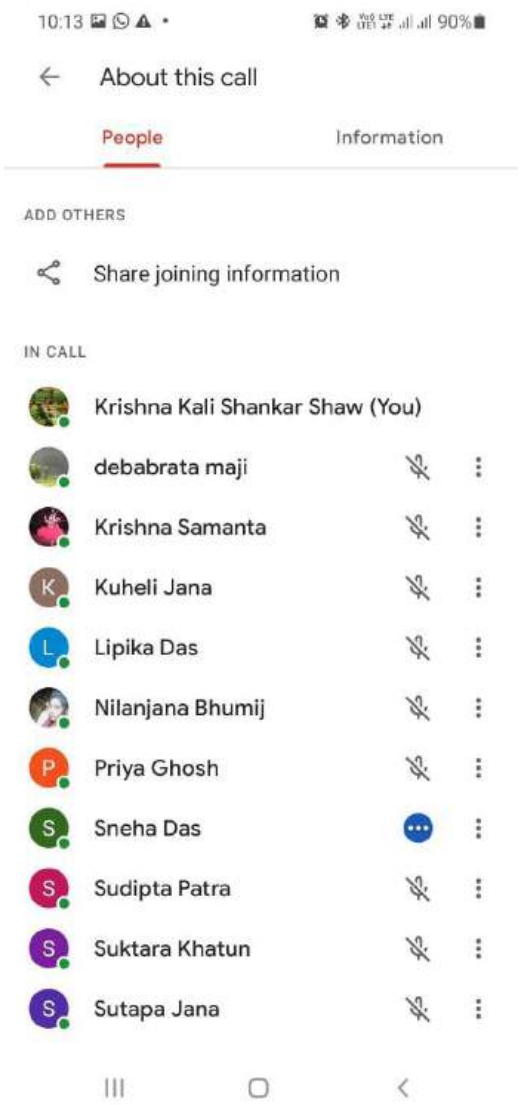
Online class taken by Swarnali Das (SACT) for 4 th sem generic



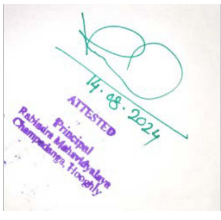


Online class taken by Swarnali Das SACT for Sem-6 Generic





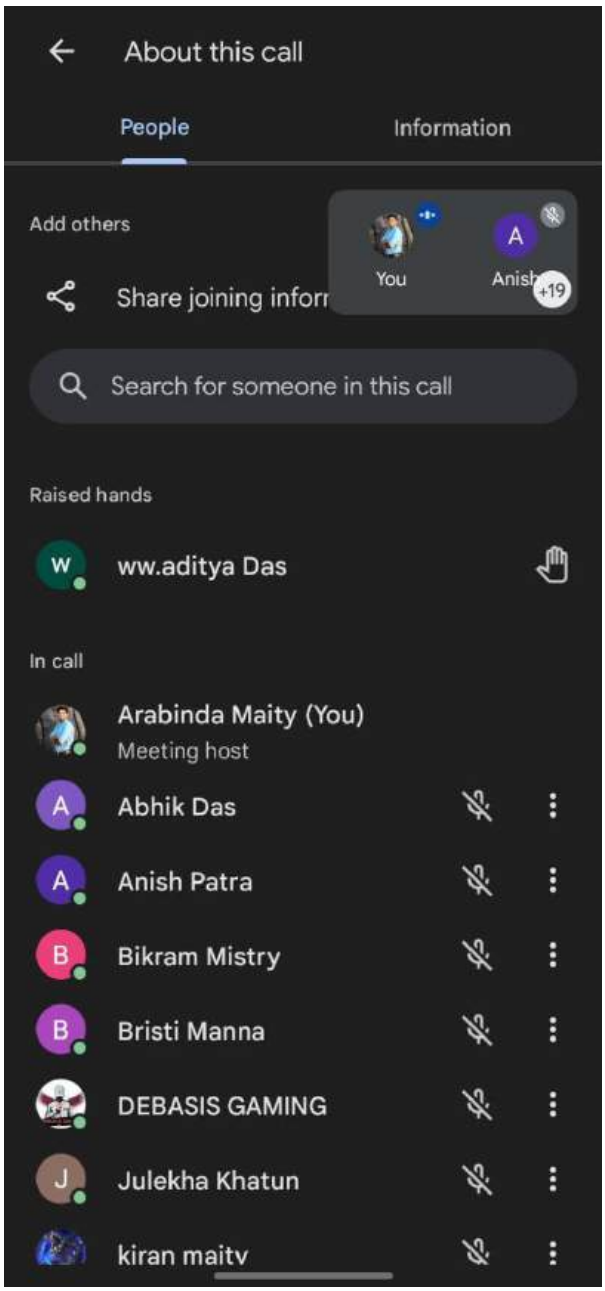
Online Class taken by Mr. Krishna Kali Mondal Asst. Prof in Pol. Sc for 2 nd Sem Honours



DEPARTMENT OF PHYSICAL EDUCATION (SESSION 2021-2022)

ONLINE CLASS - SEMESTER-1

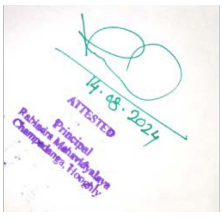
CLASS TAKEN BY MR. ARABINDA MAITY , SACT, PHYSICAL EDUCATION



Rests of the departments also have followed the similar techniques to conduct classes and evaluate student performance. (Screenshots are not attached.)

Session 2020-21

Teachers use ICT enabled tools for effective teaching-learning process.



RABINDRA MAHAVIDYALAYA

Affiliated to the University of Burdwan
Champadanga, Hooghly, West Bengal, Pin.-712401
Estd.- 1971

Ref. No.....

Date.....

This is to certify that the following ICT enabled tools for effective teaching-learning process was used by the various Departments in the session 2020-2021 at Rabindra Mahavidyalaya, Champadanga, Hooghly, West Bengal

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Rabindra Mahavidyalaya
Champadanga • Hooghly

Dr. Prasanta Bhattacharyya
Principal

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Rabindra Mahavidyalaya
Champadanga, Hooghly

Session 2020-21

Teachers use ICT enabled tools for effective teaching-learning process.

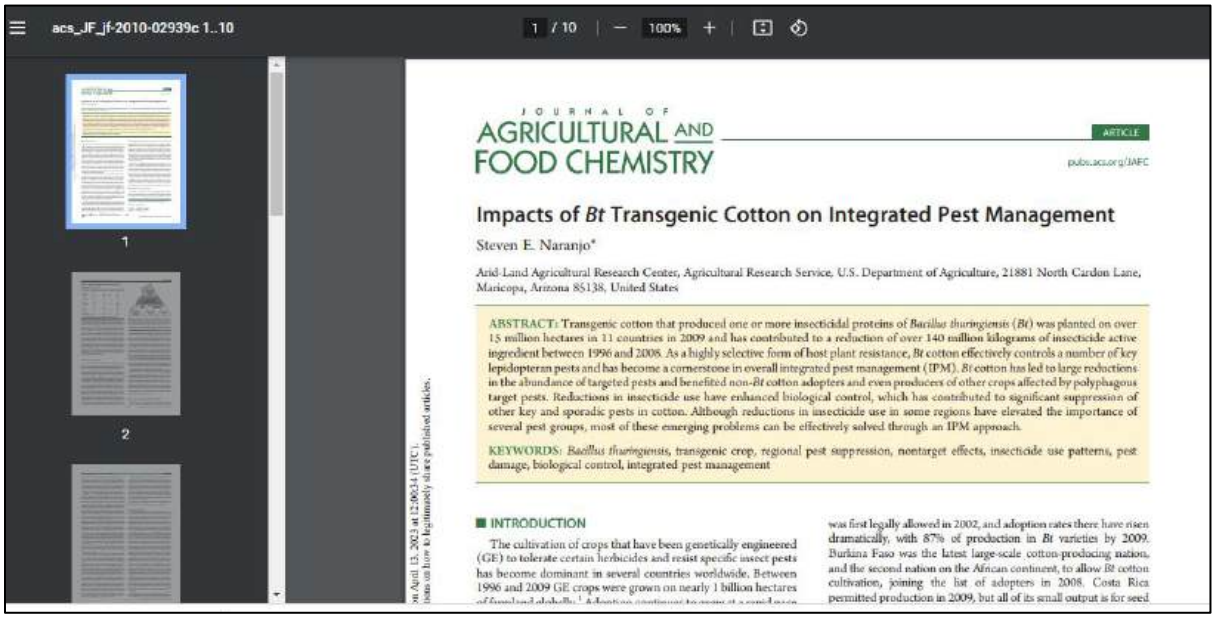
Due to Covid-19 entire teaching learning was switched to online mode. Google Meet, Zoom, etc were used for teaching through. desktop, Laptop. Smart Phone etc. Video, PPT, PDF, excel, etc files were shared for study material. E-Journals and e-books were used for effective teaching and learning.

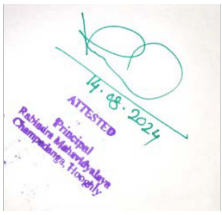
Some screenshots of the same are attached here.

Department of Botany (2020-2021)

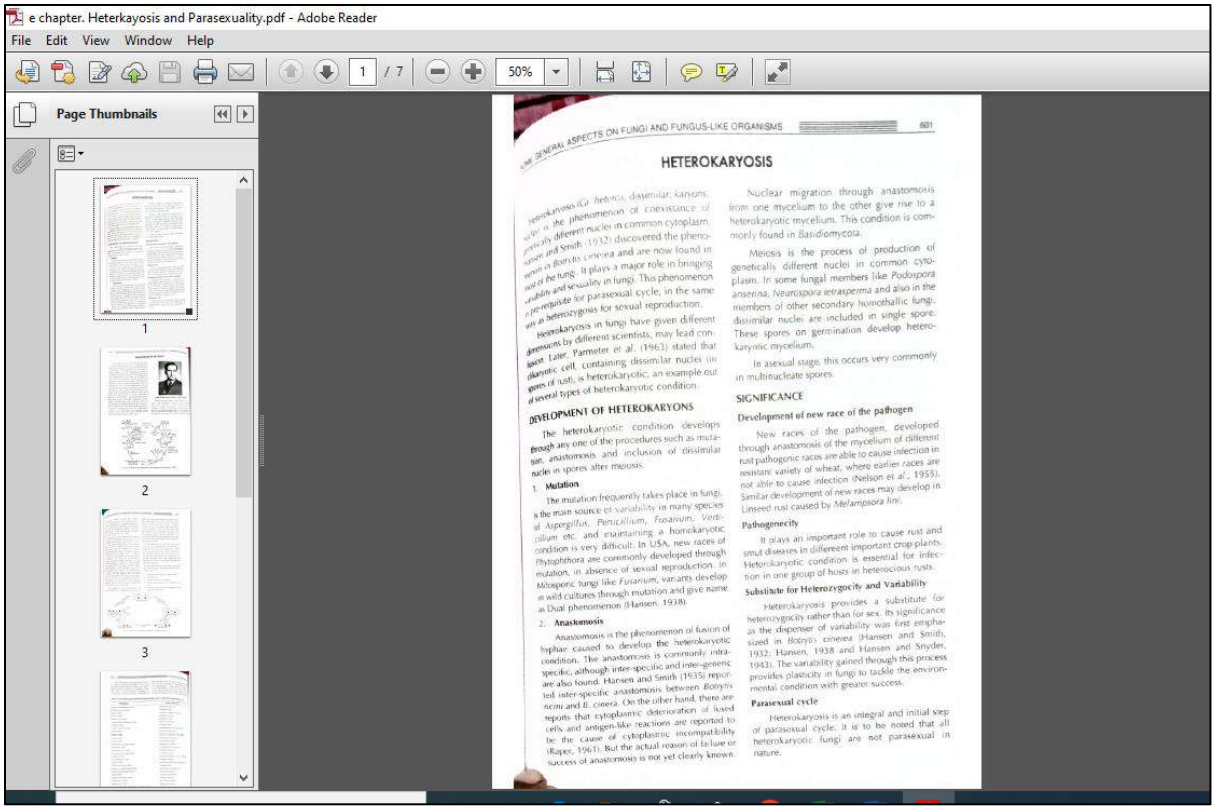
Snapshots/ screenshots of E-resources and techniques used

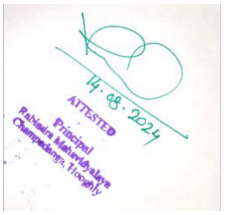
Screenshot (sample) of E- Journal Resource





PDF Sample


e chapter. Heterkayosis and Parasexuality.pdf - Adobe Reader
File Edit View Window Help
1 / 7
50%
Page Thumbnails
1
2
3
GENERAL ASPECTS ON FUNGI AND FUNGUS-LIKE ORGANISMS
601
HETEROKARYOSIS
Nuclear migration through anastomosis from one mycelium to the other give rise to a heterokaryotic mycelium. This condition is commonly found in Basidiomycota.
Meiosis is the process of production of genetically different nuclei in common cytoplasm. In some fungal members like Podospora anserina, Neurospora tetrasperma and also in the members of other secondary homothallic fungi, dissimilar nuclei are included in single spore. These spores on germination develop heterokaryotic mycelium.
In asexual stage, this occurs very commonly in multinucleate spores.
SIGNIFICANCE
Development of new race of the pathogen
New races of the pathogen, developed through anastomosis of the mycelium of different rust pathogenic races are able to cause infection in resistant variety of wheat, where earlier races are not able to cause infection (Nelson et al., 1955). Similar development of new races may develop in Linseed rust caused by Melampsora lini.
Pathogenecity
It plays an important role to cause rust and smut diseases in different important crop plants. Heterokaryotic condition is essential for infection in one group of hosts in heterocious rusts.
Substitute for Heterozygocity and Variability
Heterokaryosis provides a substitute for heterozygocity rather than for sex. Its significance as the dispenser of variability was first emphasized in Botrytis cinerea (Hansen and Smith, 1932; Hansen, 1938 and Hansen and Snyder, 1943). The variability gained through this process provides plasticity in fungi to tackle the environmental condition with greater success.
Parasexual cycle
Heterokaryosis is an integral and initial step of parasexual cycle. It is to be noted that all heterokaryotic fungi are not parasexual in nature.
DEVELOPMENT OF HETEROKARYONS
The heterokaryotic condition develops through any one of the procedures such as mutation, anastomosis and inclusion of dissimilar nuclei in spores after meiosis.
1. Mutation
The mutation frequently takes place in fungi, is the main source of variability in many species of Aspergillus, Penicillium, Fusarium, Verticillium etc. and maintaining a homokaryotic condition is very difficult. In USA, new races of Phytophthora are commonly developed through mutation, in absence of sexual reproduction. In Mitosporic fungi like Fusarium, variants develop in wild cultures through mutation and give name as Dual phenomenon (Hansen, 1938).
2. Anastomosis
Anastomosis is the phenomenon of fusion of hyphae caused to develop the heterokaryotic condition. The anastomosis is commonly intraspecific, although inter-specific and inter-generic are also found. Hansen and Smith (1935) reported inter-specific anastomosis between Botrytis cinerea and B. cinerea. On the other hand, there are reports that cytoplasmic deterioration of fused cells and antigen-like reactions are reported to be the cause of cytoplasmic incompatibility (Raper, 1961). But the actual reason of failure or success of anastomosis is not yet clearly known.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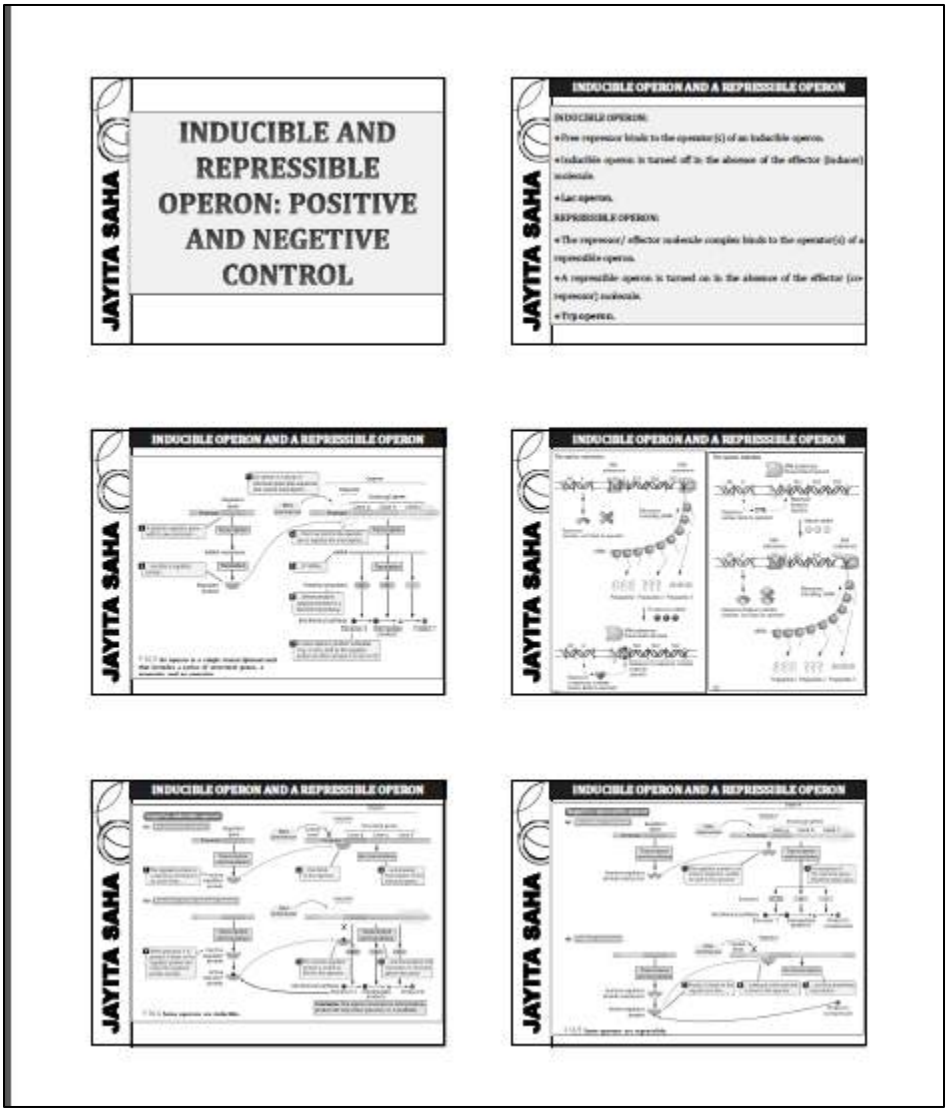

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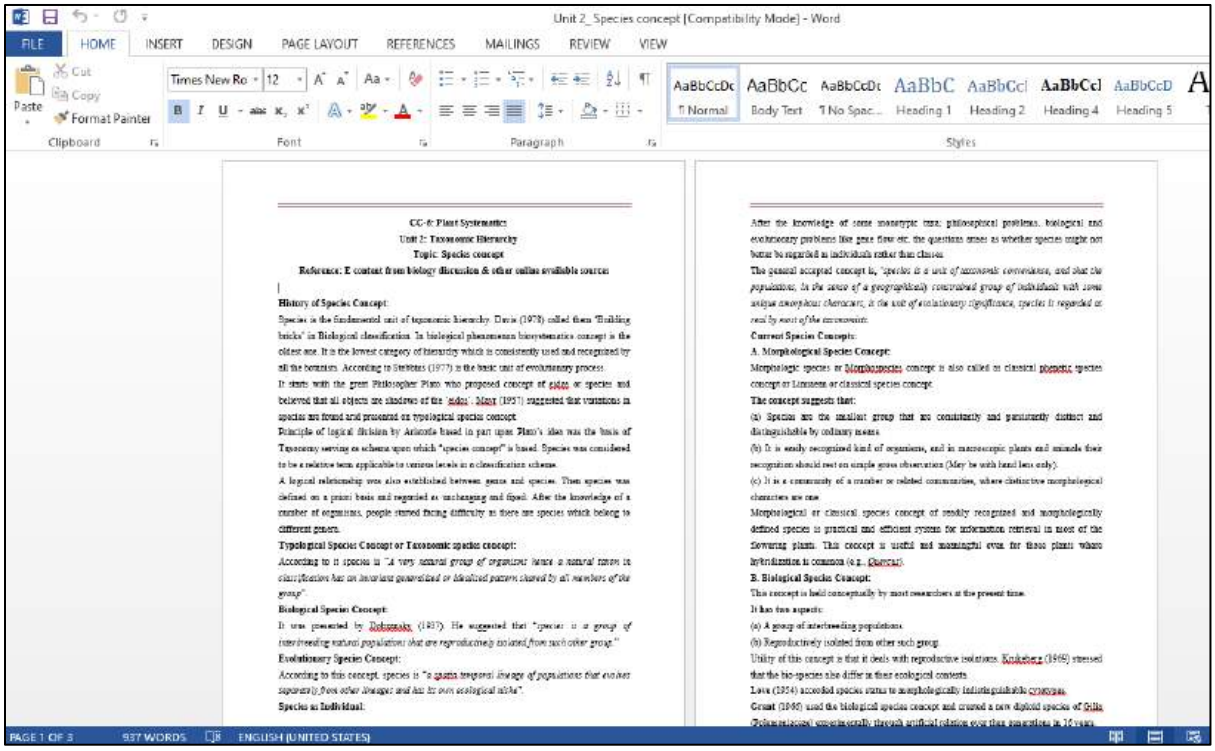

Unit 2_ Species concept [Compatibility Mode] - Word

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CC-6: Plant Systematics

Unit 2: Taxonomic Hierarchy

Topic: Species concept

Reference: E content from biology discussion & other online available sources

History of Species Concept:

Species is the fundamental unit of taxonomic hierarchy. Davis (1978) called them "Building bricks" in Biological classification. In biological phenomenon biosystematics concept is the oldest one. It is the lowest category of hierarchy which is consistently used and recognized by all the botanists. According to Stebbins (1977) is the basic unit of evolutionary process.

It starts with the great Philosopher Plato who proposed concept of eidos or species and believed that all objects are shadows of the 'eidos'. Mayr (1957) suggested that variations in species are found and presented on typological species concept.

Principle of logical division by Aristotle based in part upon Plato's idea was the basis of Taxonomy serving as schema upon which "species concept" is based. Species was considered to be a relative term applicable to various levels in a classification scheme.

A logical relationship was also established between genus and species. Then species was defined on a priori basis and regarded as unchanging and fixed. After the knowledge of a number of organisms, people started facing difficulty as there are species which belong to different genera.

Typological Species Concept or Taxonomic species concept:

According to it species is *"A very natural group of organisms hence a natural taxon in classification has an invariant generalized or idealized pattern shared by all members of the group"*.

Biological Species Concept:

It was presented by Dobzhansky (1937). He suggested that *"species is a group of interbreeding natural populations that are reproductively isolated from such other group."*

Evolutionary Species Concept:

According to this concept, species is *"a genetic temporal lineage of populations that evolves separately from other lineages and has its own ecological niche"*.

Species as Individual:

After the knowledge of some monotypic taxa, philosophical problems, biological and evolutionary problems like gene flow etc. the questions arises as whether species might not better be regarded as individuals rather than classes.

The general accepted concept is, *"species is a unit of taxonomic convenience, and that the populations, in the sense of a geographically constituted group of individuals with some unique taxonomic characters, is the unit of evolutionary significance, species is regarded as real by most of the taxonomists.*

Current Species Concepts:

A. Morphological Species Concept:

Morphologic species or Morphospecies concept is also called as classical phenetic species concept or Linnaean or classical species concept.

The concept suggests that:

(a) Species are the smallest group that are consistently and persistently distinct and distinguishable by ordinary means.

(b) It is easily recognized kind of organisms, and in macroscopic plants and animals their recognition should rest on simple gross observation (May be with hand lens only).

(c) It is a community of a number or related communities, where distinctive morphological characters are one.

Morphological or classical species concept of readily recognized and morphologically defined species is practical and efficient system for information retrieval in most of the flowering plants. This concept is useful and meaningful even for those plants where hybridization is common (e.g., Quercus).

B. Biological Species Concept:

This concept is held conceptually by most researchers at the present time.

It has two aspects:

(a) A group of interbreeding populations.

(b) Reproductively isolated from other such group.

Utility of this concept is that it deals with reproductive isolations. Krukeberg (1969) stressed that the bio-species also differ in their ecological contexts.

Love (1954) accorded species status to morphologically indistinguishable cytotypes.

Grant (1963) used the biological species concept and created a new diploid species of Gilia (Polemoniaceae) experimentally through artificial relation even than generations in 16 years.

PAGE 1 OF 3 937 WORDS ENGLISH (UNITED STATES)

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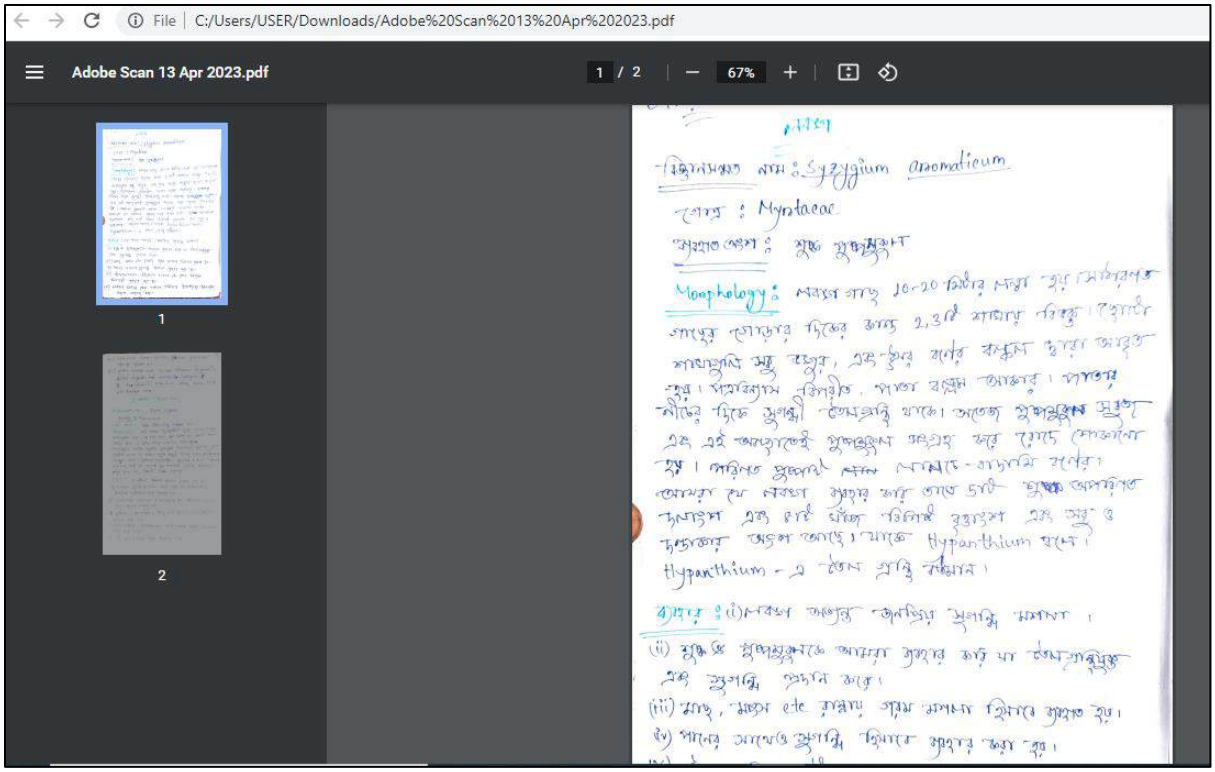

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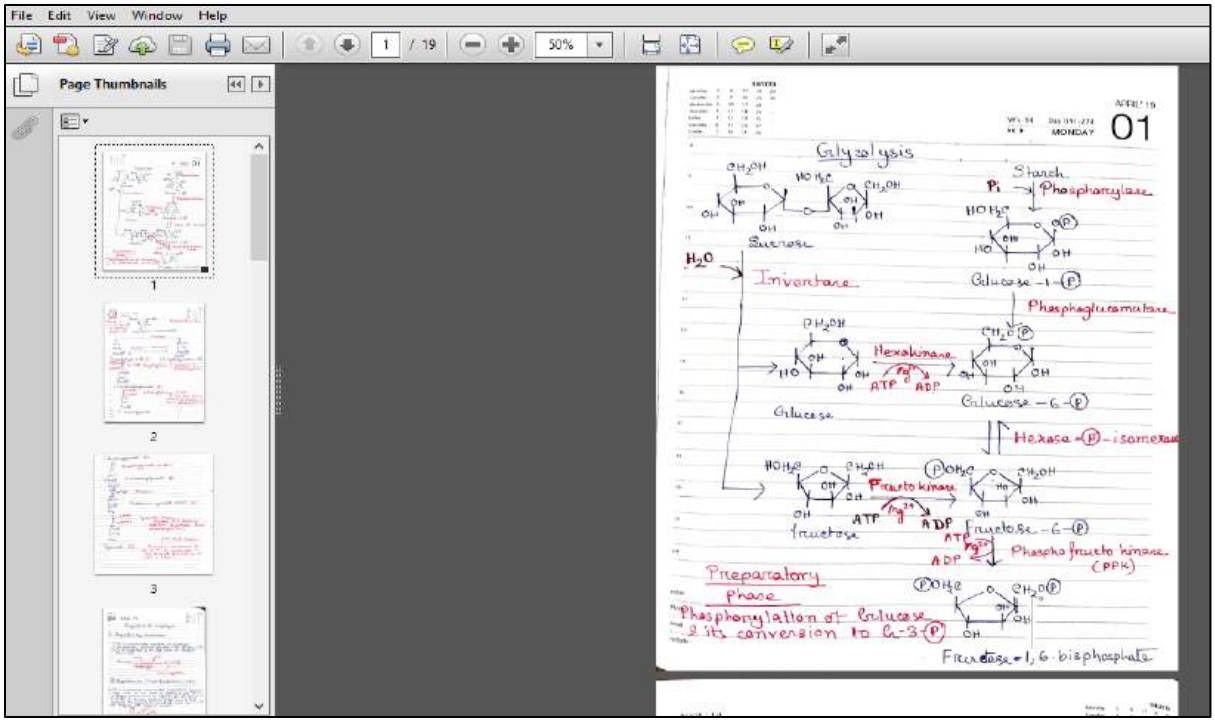

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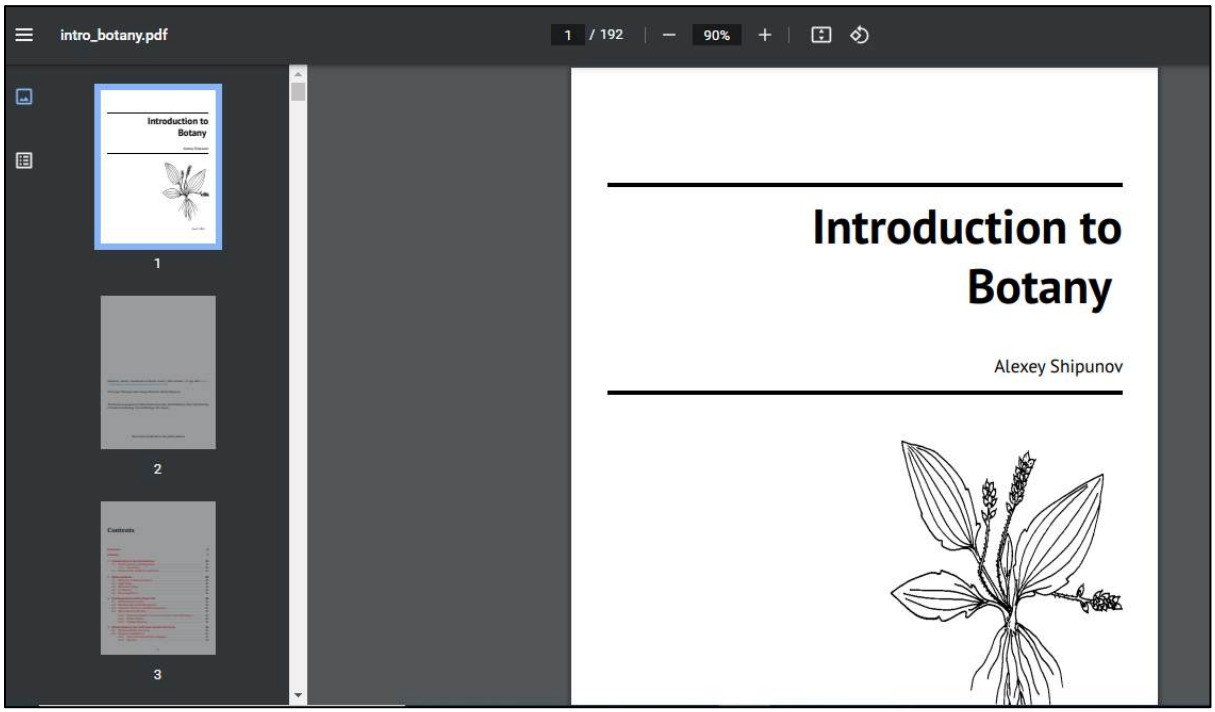

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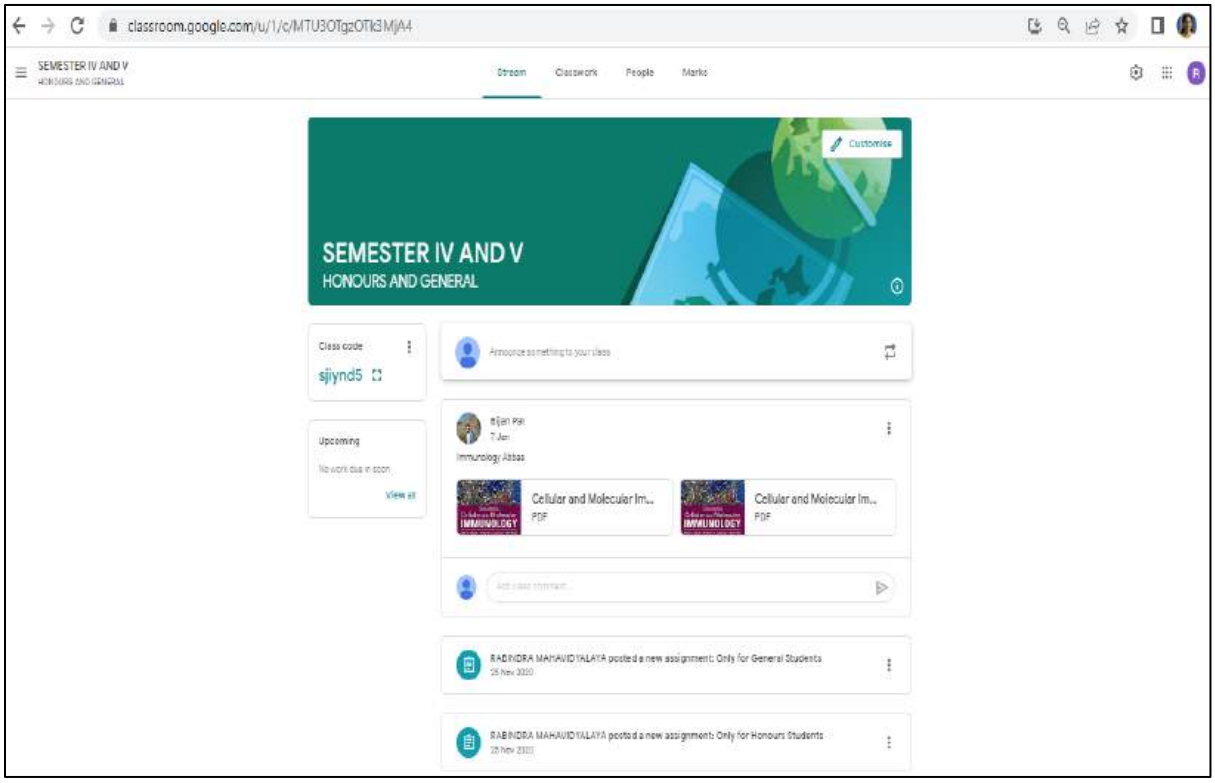

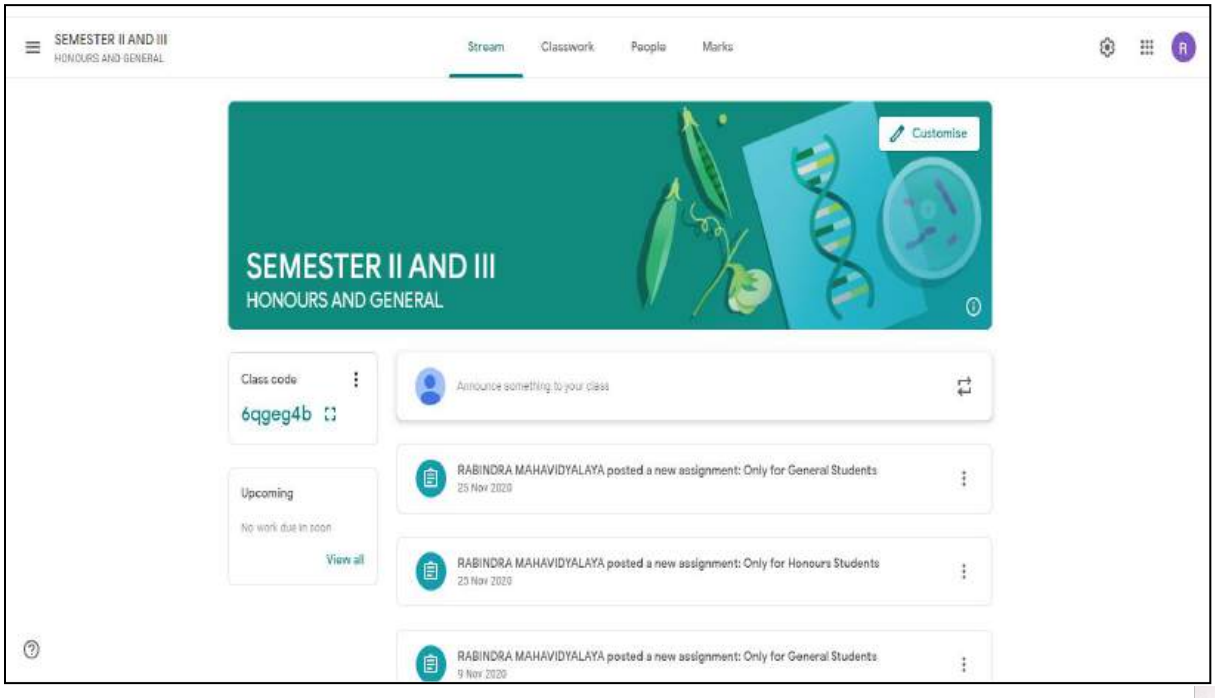

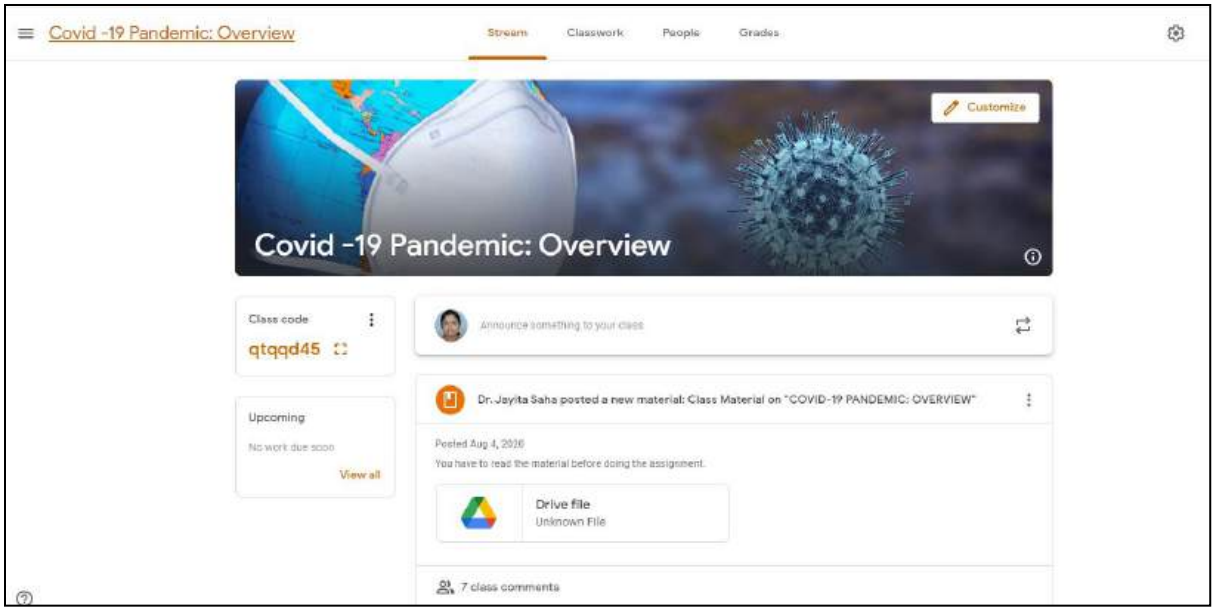
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Dr. Jayita Saha posted a new material: Class Material on "COVID-19 PANDEMIC: OVERVIEW"
Posted Aug 4, 2020
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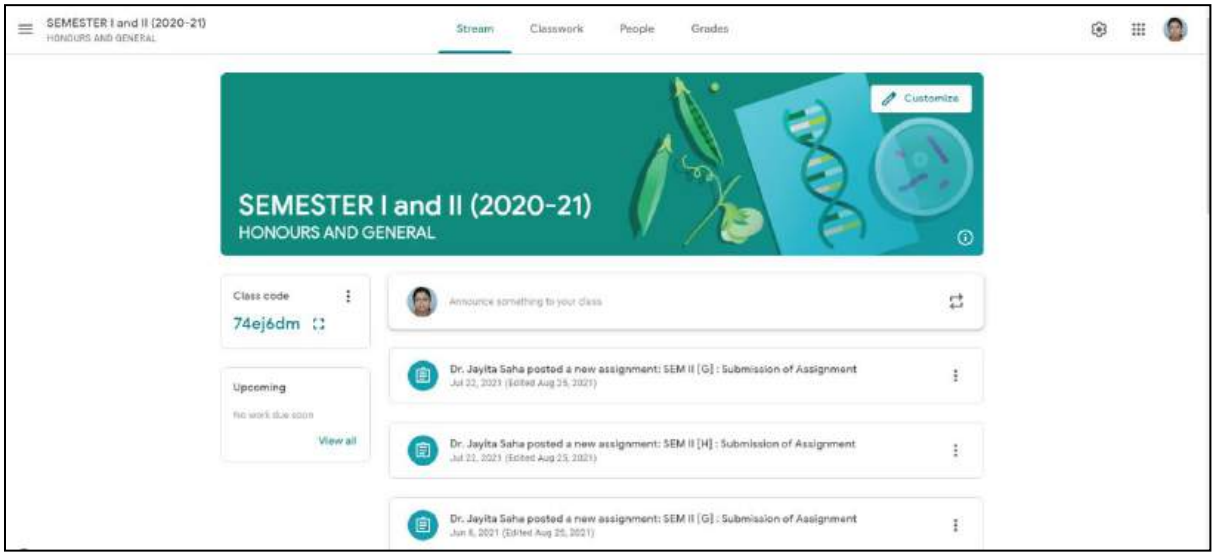
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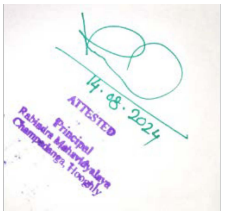
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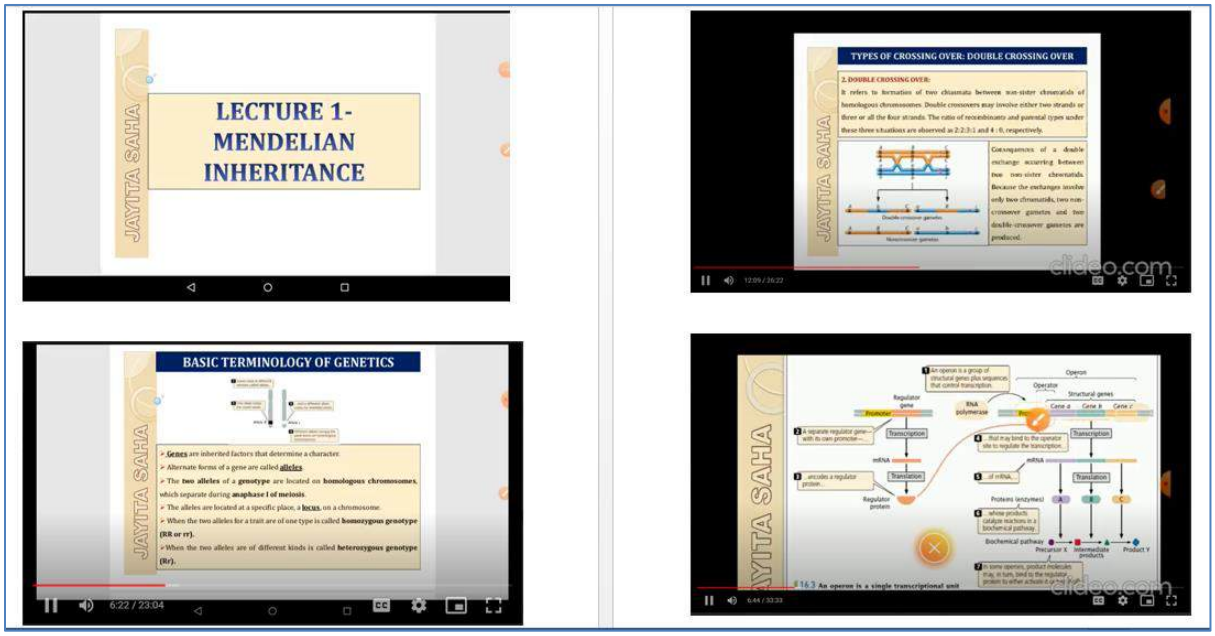
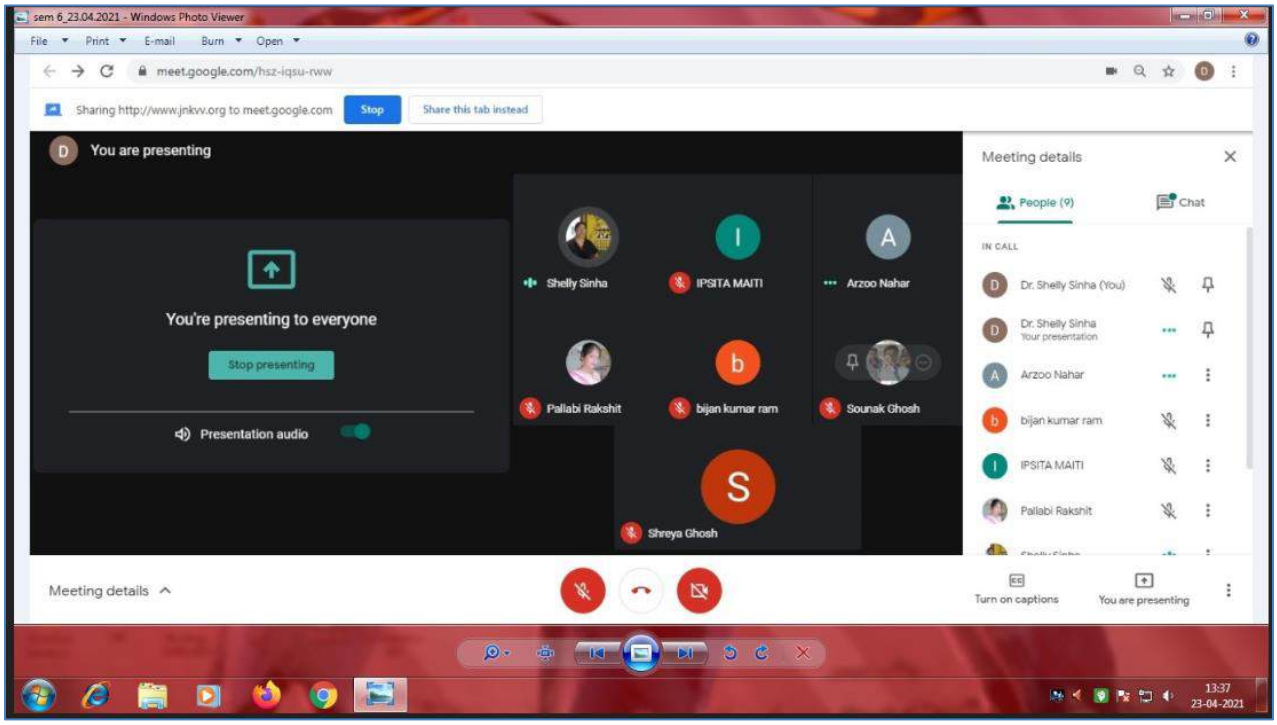


Google Meet

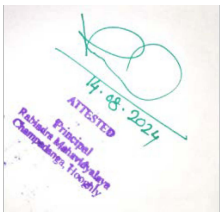


Department of Chemistry (2020-2021)

Snapshots/ screenshots of E-resources and techniques used

Screenshot (sample) of Resources

PPT Sample



Chemistry Hons. SEM- IV

PHYSICAL CHEMISTRY

Applications of Thermodynamics-II

By

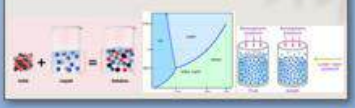
Dr. Debasmita Sardar
Assistant Professor
Department of Chemistry
Rabindra Mahavidyalaya
Champadanga, Hooghly

10

Course Code- CC-8

Course Title- Physical Chemistry-III (Theo)

Applications of Thermodynamics-II



11

Topics

Application of Thermodynamics - II

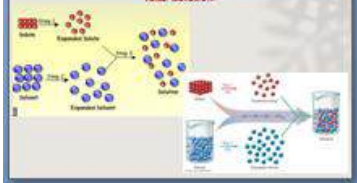
1. Colligative properties: Vapour pressure of solution: Ideal solutions, Ideally diluted solutions and colligative properties: Raoult's law; Thermodynamic derivation using chemical potential to derive relations between the four colligative properties, i.e., (i) relative lowering of vapour pressure, (ii) elevation of boiling point, (iii) depression of freezing point, (iv) Osmotic pressure. Application in calculating molar masses of solute; Abnormal colligative properties for dissociated and associated solutes in solution.

2. Phase rule: Definitions of phase, component and degrees of freedom; Phase rule and its derivations; Phase diagram for water, CO_2, Sulphur

3. First order phase transition and Clapeyron equation; Clausius-Clapeyron equation - derivation and use; Liquid vapour equilibrium for two component systems.

12

Ideal Solution



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Ideal Solution

16

Ideal & Non-Ideal Solution

Ideal solutions and Non- ideal solutions

Ideal solutions	Non- ideal solutions
The solutions that obey Raoult's Law over the entire range of concentrations are known as ideal solutions.	When a solution does not obey Raoult's Law over the entire range of concentration, then it is called non-ideal solution.
$\Delta_{mix}H=0$ and $\Delta_{mix}V=0$	$\Delta_{mix}H \neq 0$ and $\Delta_{mix}V \neq 0$
The intermolecular attractive forces between solute molecules and solvent molecules i.e. A-A and B-B interactions are nearly equal to those present between A-B	The intermolecular attractive forces between solute molecules and solvent molecules are not equal to those present between solute and solvent molecules i.e. A-A and B-B interactions are not equal to those between A-B

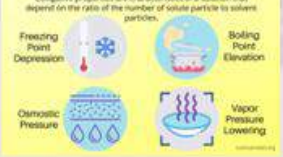
17

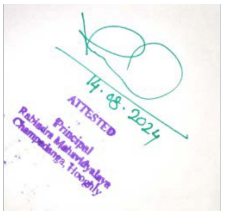
Vapor Pressure

Vapour Pressure

Colligative Properties

Colligative properties are characteristics of a solution that depend on the ratio of the number of solute particle to solvent particles.



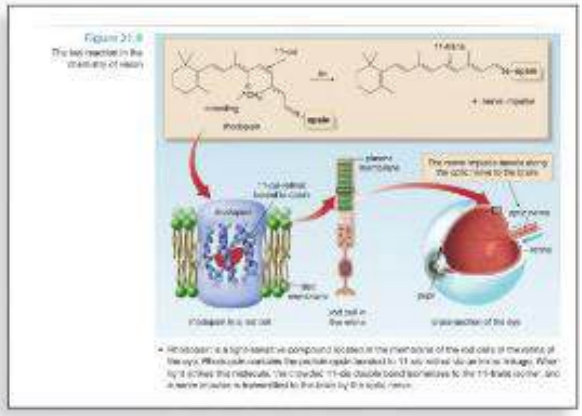


PDF Sample

Illustrations

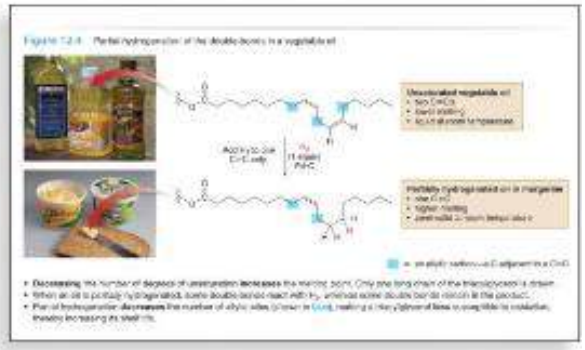
Organic Chemistry is supported by a well-developed illustration program. Besides traditional skeletal (line) structures and condensed formulas, there are numerous ball-and-stick molecular models and electrostatic potential maps to help students grasp the three-dimensional structure of molecules (including stereochemistry) and to better understand the distribution of electronic charge.

"I believe that dissecting the text gives students time to understand and to digest, step-by-step, each concept presented, rather than memorize them. This helps students in achieving better results faster. . . . The quality of the illustrations is very good, without unnecessary explanations that could make them confusing. The language is easy to follow, the concept easy to understand."
—Camelia Gogonea, Cleveland State University

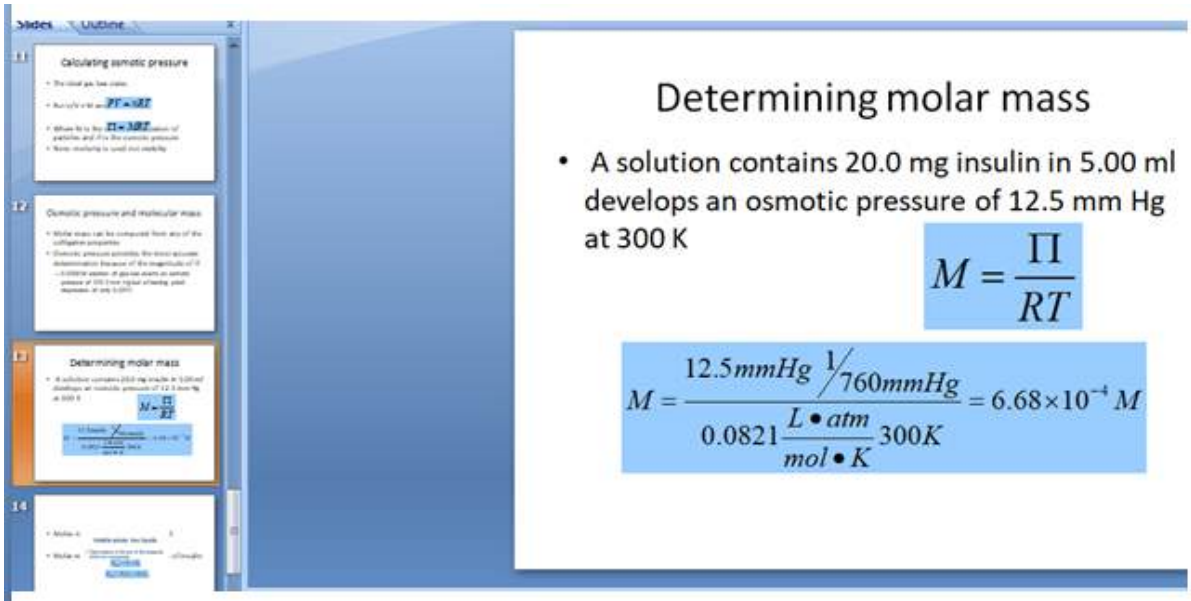


Micro-to-Macro Illustrations

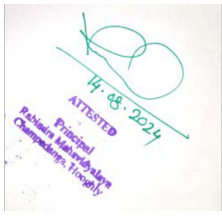
Unique to *Organic Chemistry* are micro-to-macro illustrations, where line art and photos combine with chemical structures to reveal the underlying molecular structures giving rise to macroscopic properties of common phenomena. Examples include starch and cellulose (Chapter 5), adrenaline (Chapter 7), partial hydrogenation of vegetable oil (Chapter 12), and dopamine (Chapter 25).

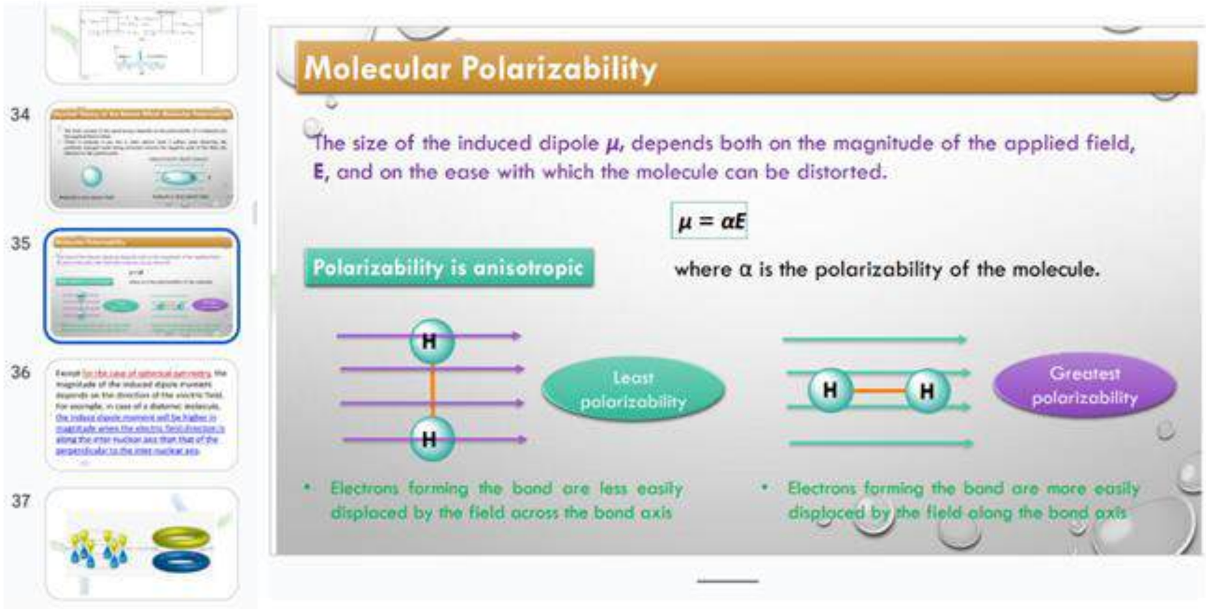


Class Materials



Class taken by Dr. Sucheta Joy, Assistant Professor, department of Chemistry on colligative properties





Class taken by Dr. Debasmita Sardar, Assistant Professor, department of Chemistry on Raman Spectroscopy

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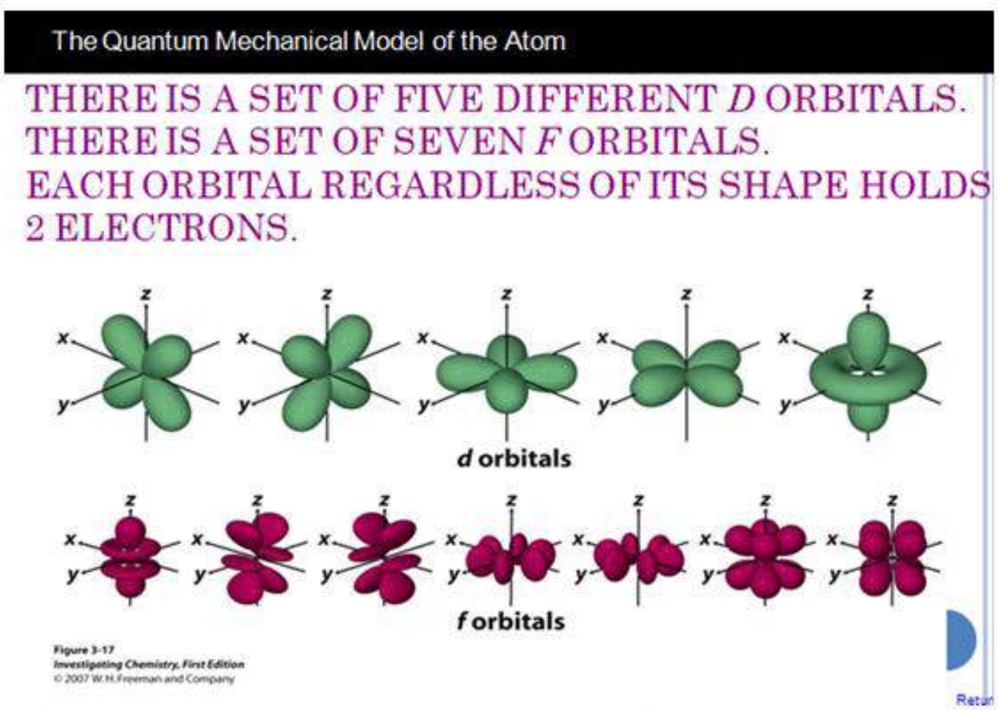

Class taken by Dr. Dr. Sucheta Joy, Assistant Professor, department of Chemistry on atomic structure

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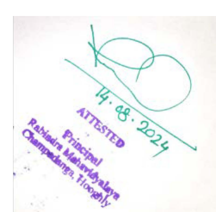

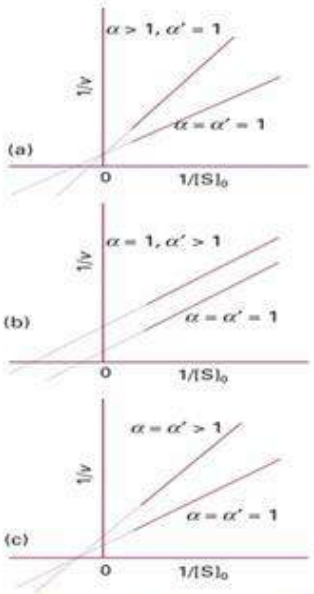

- Lineweaver–Burk plots characteristic of the three major modes of enzyme inhibition:
- (a) competitive inhibition,
- (b) uncompetitive inhibition, and
- (c) non-competitive inhibition, showing the special case $\alpha = \alpha' > 1$.

$$[E]_0 = \frac{K_M[ES]}{[S]_0}\alpha + [ES]\alpha' = [ES]\left(\frac{\alpha K_M}{[S]_0} + \alpha'\right)$$

Class taken by Dr. Sucheta Joy, Assistant Professor, department of Chemistry on photochemistry

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1. Prevention of Waste/By-Products

It is better to prevent waste/By Products than to treat or clean up waste after it is formed.

✓ Carry out a synthesis in such a way so that formation of waste (by-products') is minimum or absent.

✓ Cost involved in the treatment and disposal of waste adds to the overall production cost.

✓ The unreacted starting materials also form part of the waste.

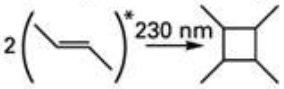
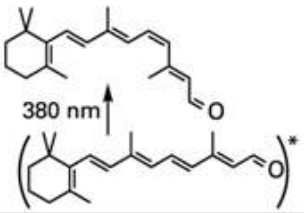
✓ If discharged causes pollution and requires expenditure for cleaning-up.

❖ An Ounce of Prevention is Worth a Pound Of Cure.

❖ A Chemist in a Green Chemistry lab is Performing Pollution Prevention on a Molecular level .

Class taken by Mrs. Subhra Dholey, SACT, department of Chemistry on green chemistry

Table 23.1 Examples of photochemical processes

Process	General form	Example
Ionization	$A^* \rightarrow A^+ + e^-$	$NO^* \xrightarrow{134\ nm} NO^+ + e^-$
Electron transfer	$A^* + B \rightarrow A^+ + B^-$ or $A^- + B^+$	$[Ru(bpy)_3^{2+}]^* + Fe^{3+} \xrightarrow{452\ nm} Ru(bpy)_3^{3+} + Fe^{2+}$
Dissociation	$A^* \rightarrow B + C$	$O_3^* \xrightarrow{1180\ nm} O_2 + O$
	$A^* + B\text{-}C \rightarrow A + B + C$	$Hg^* + CH_4 \xrightarrow{254\ nm} Hg + CH_3 + H$
Addition	$2\,A^* \rightarrow B$	
	$A^* + B \rightarrow AB$	
Abstraction	$A^* + B—C \rightarrow A—B + C$	$Hg^* + H_2 \xrightarrow{254\ nm} HgH + H$
Isomerization or rearrangement	$A^* \rightarrow A'$	

* Excited state.

Table 23-1
Atkins Physical Chemistry, Eighth Edition

Class taken by Dr. Sucheta Joy, Assistant Professor, department of Chemistry on photochemical process

Scanned hand written notes

For anharmonic oscillator, find the expression of dissociation energy (D_e) & true dissociation energy (D_0) in terms of $\bar{\omega}_e$ & x_e

Quantised vibrational energy

$$\epsilon_v = (v+\tfrac{1}{2})\bar{\omega}_e - (v+\tfrac{1}{2})^2 x_e \bar{\omega}_e \quad \text{---(1)}$$

For max value of quantisation Energy

$$\frac{d\epsilon_v}{dv} = 0 \quad \text{---(2)}$$

From (1) $\frac{d\epsilon_v}{dv} = \bar{\omega}_e - 2(v+\tfrac{1}{2})\cdot 1 \cdot \bar{\omega}_e x_e$

$= \bar{\omega}_e - 2v\,\bar{\omega}_e x_e - \bar{\omega}_e x_e$

$= \bar{\omega}_e(1 - 2v x_e - x_e) \qquad [\bar{\omega}_e \neq 0]$

From (1) & (2) $1 - 2v x_e - x_e = 0$

$1 - x_e = 2v x_e \qquad \therefore V_{max} = \frac{1-x_e}{2x_e} = \frac{1}{2x_e} - \frac{1}{2}$

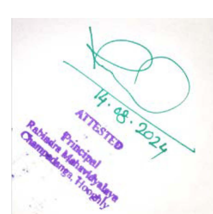
$\epsilon_{v,max} = (v_{max}+\tfrac{1}{2})\bar{\omega}_e - (v_{max}+\tfrac{1}{2})^2 \bar{\omega}_e x_e = (\frac{1}{2x_e} - \frac{1}{2} + \frac{1}{2})\bar{\omega}_e - (\frac{1}{2x_e} - \frac{1}{2} + \frac{1}{2})^2 \bar{\omega}_e x_e$

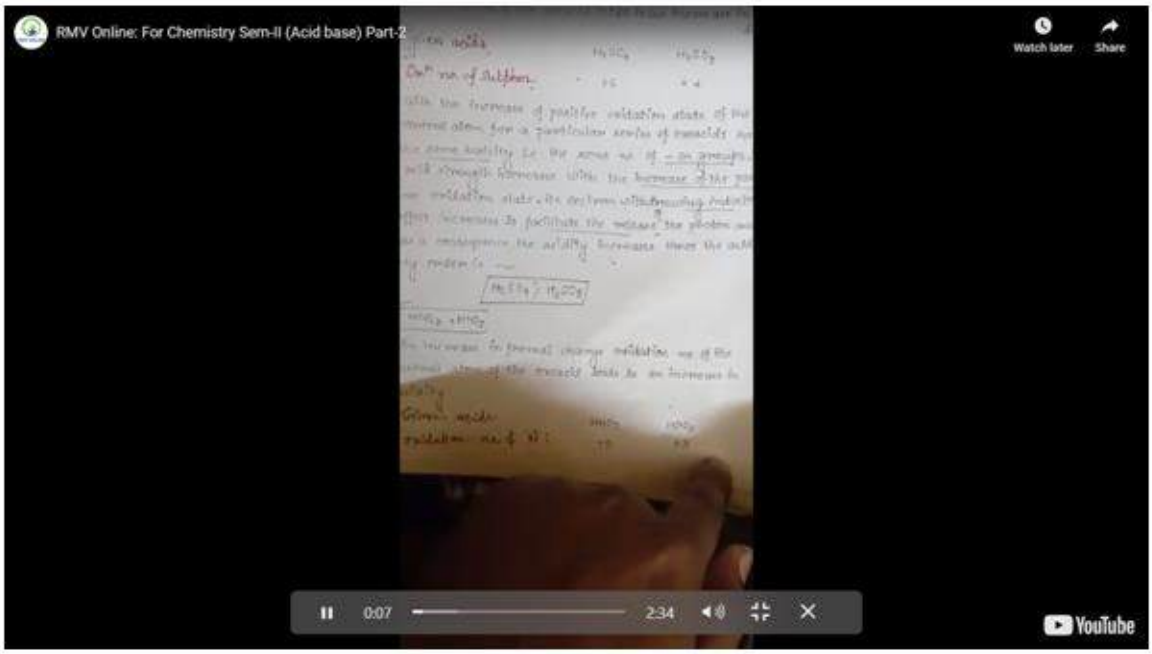
$\epsilon_{v,max} = \frac{\bar{\omega}_e}{4x_e} = D_e$

$D_0 = D_e - E_{zero\,pt} = \frac{\bar{\omega}_e}{4x_e} - [\tfrac{1}{2}\bar{\omega}_e - \tfrac{1}{4}\bar{\omega}_e x_e]$

$$\boxed{D_0 = \frac{\bar{\omega}_e}{4x_e} - \frac{1}{2}\bar{\omega}_e(1 - \tfrac{1}{2}x_e)}$$

Class taken by Dr. Debasmita Sardar, Assistant Professor, department of Chemistry on IR Spectroscopy





Class taken by Dr. Rabiul Alam, Assistant Professor, department of Chemistry on acid-base

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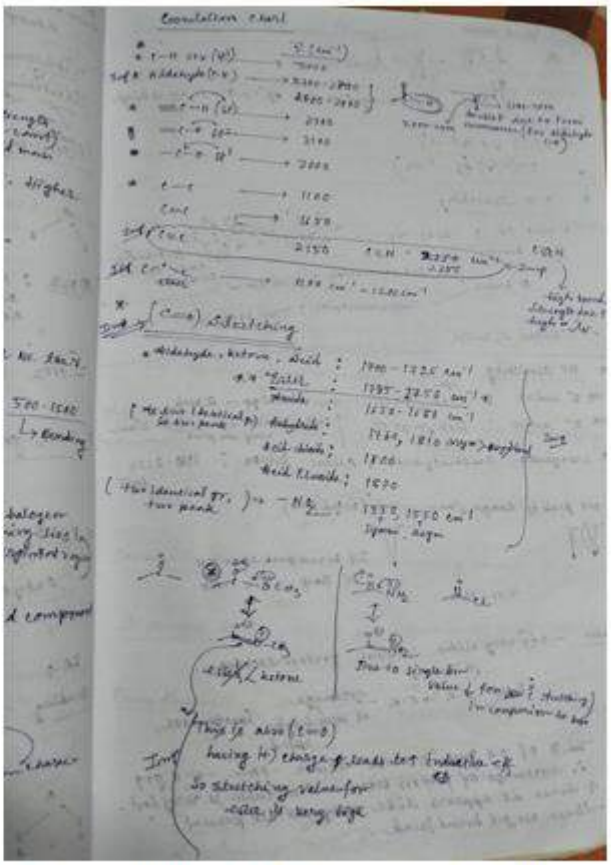
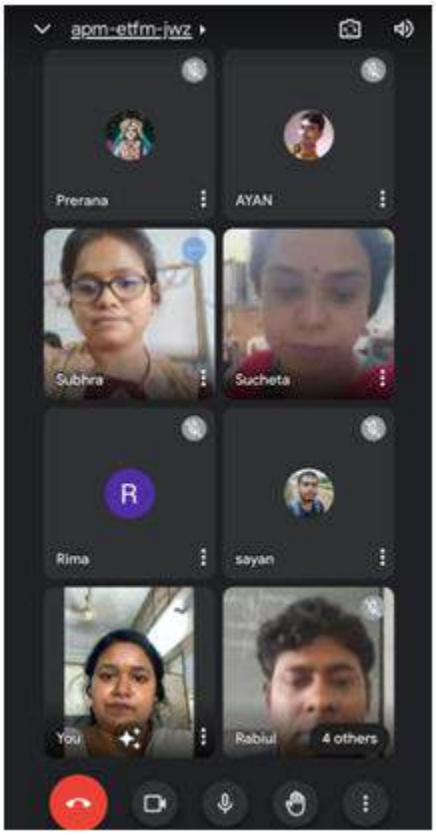
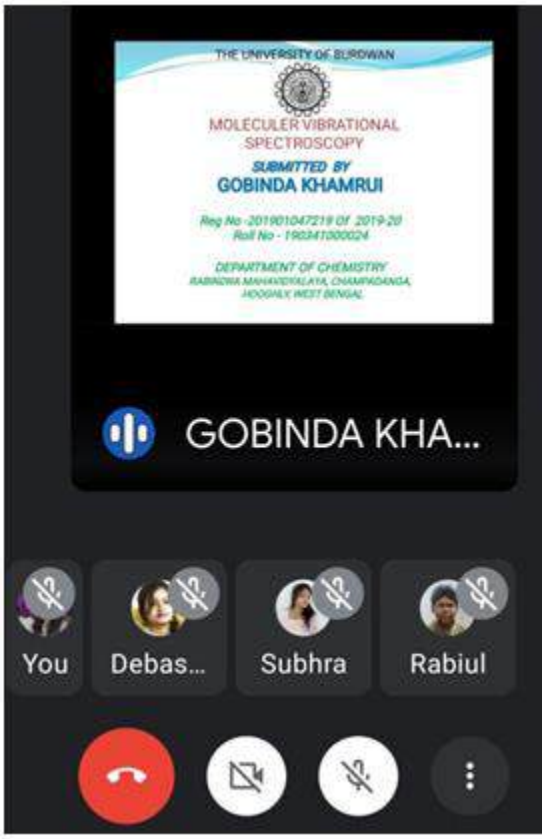
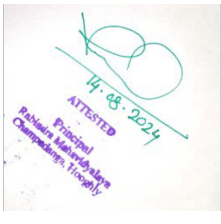


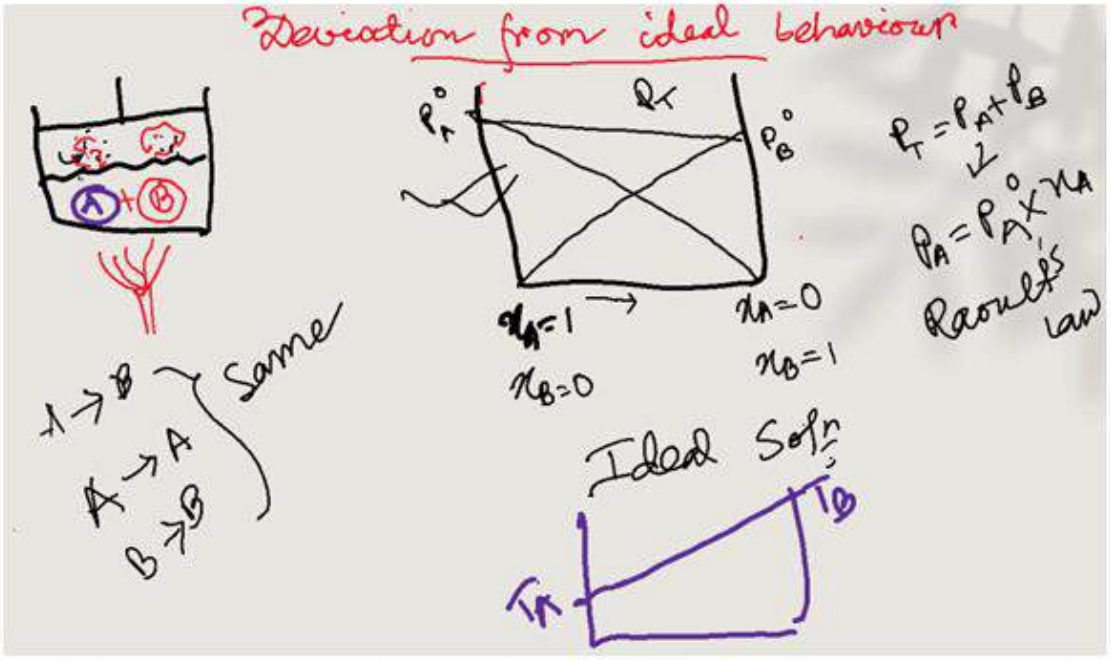
Class taken by Mrs. Subhra dholey, SACT, department of Chemistry on stretching frequency

Google Classroom









Class taken by Dr. Debasmita Sardar, Assistant Professor, department of Chemistry on solutions

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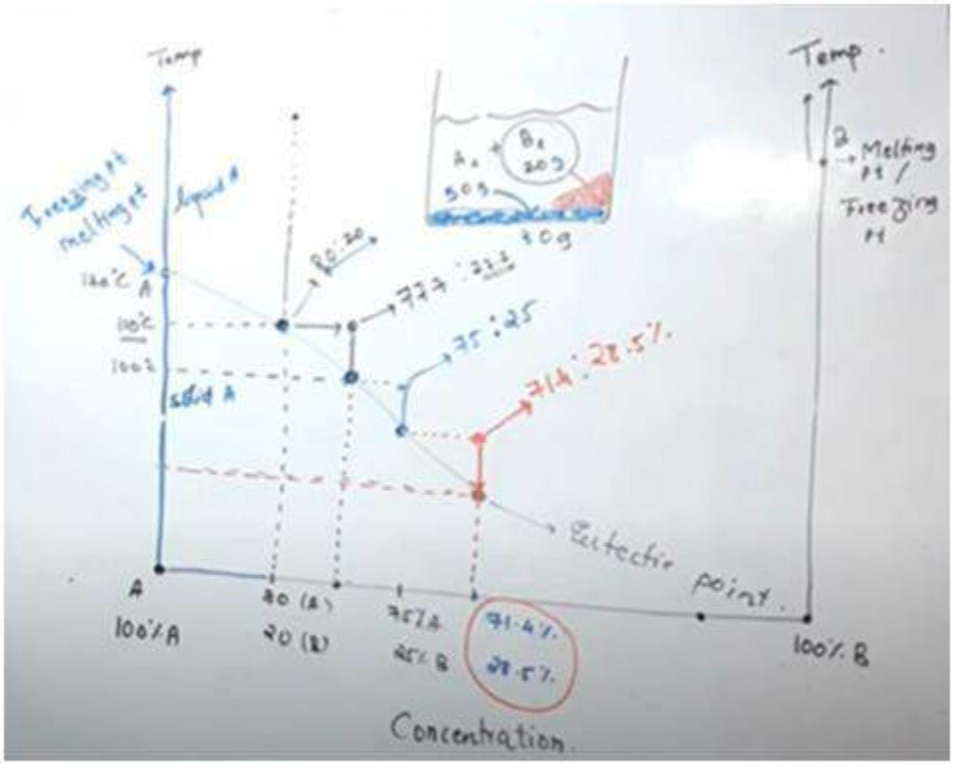

Class taken by Dr. Debasmita Sardar, Assistant Professor, department of Chemistry on phase equilibrium

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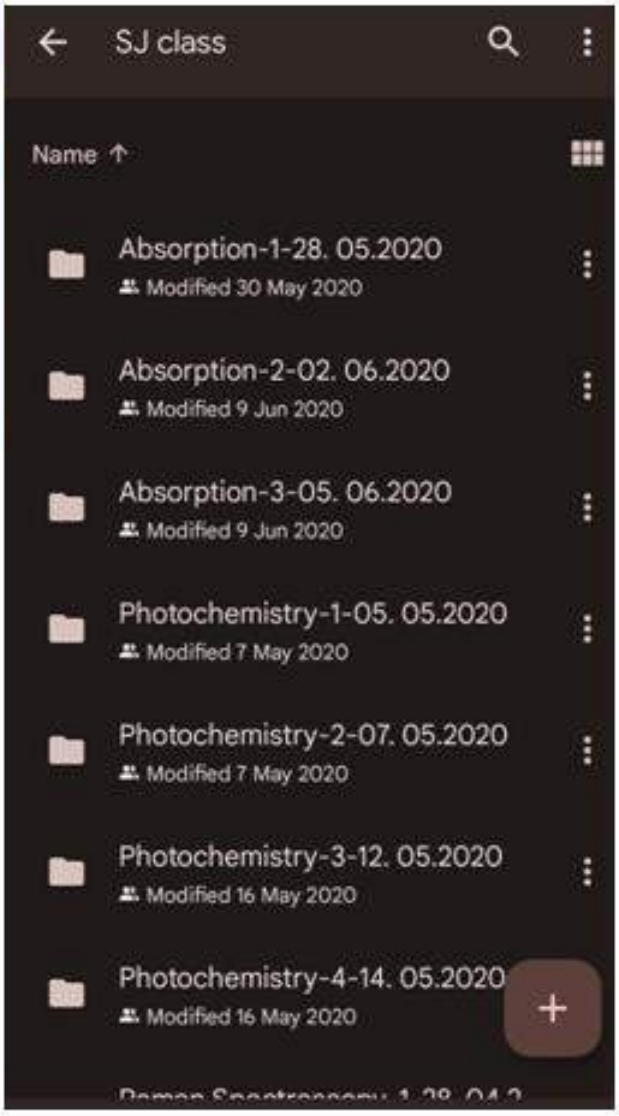
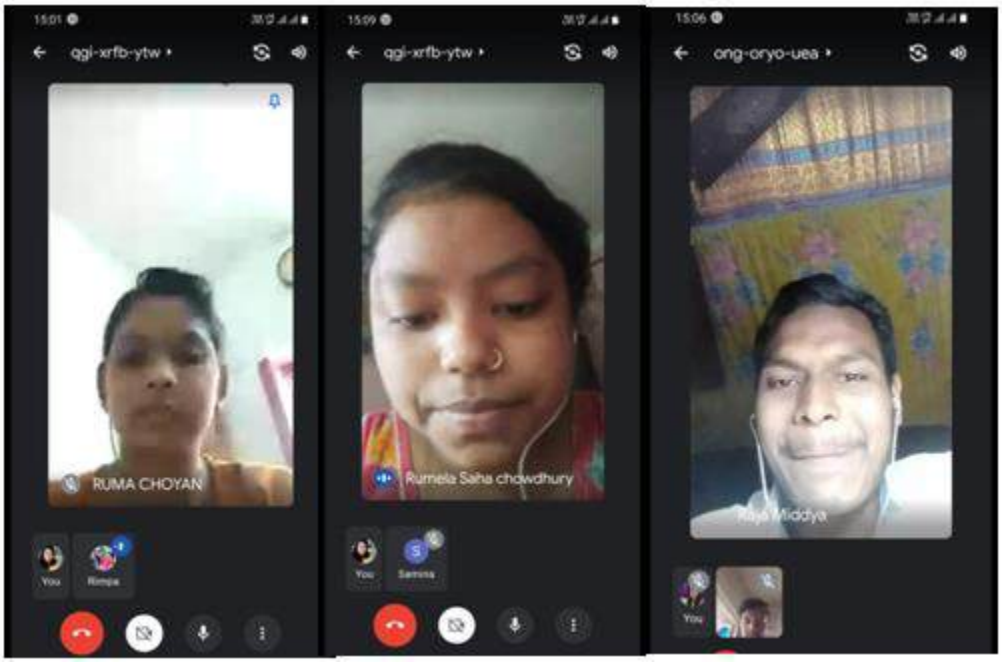
Students Review for online classes & uploaded class notes



Exam Viva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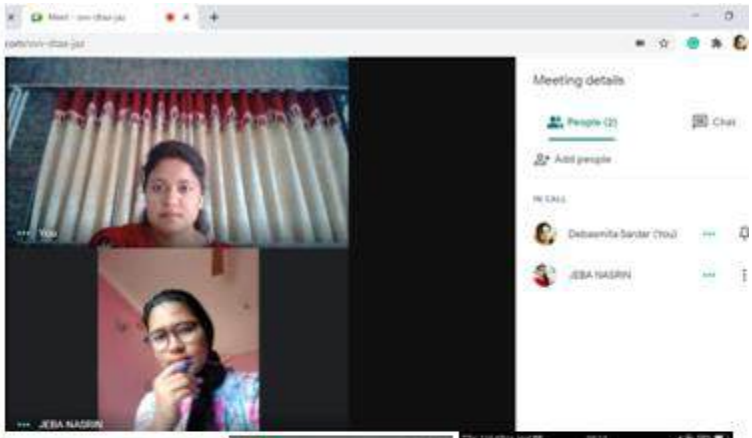
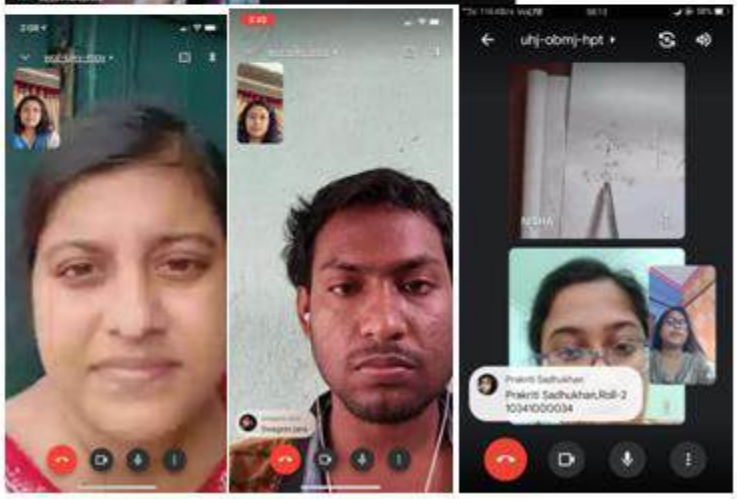

Meeting details
People (2)
Chat
Add people
Debasmita Sardar (You)
JEBA NASRIN
JEBA NASRIN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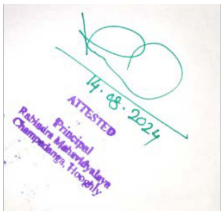
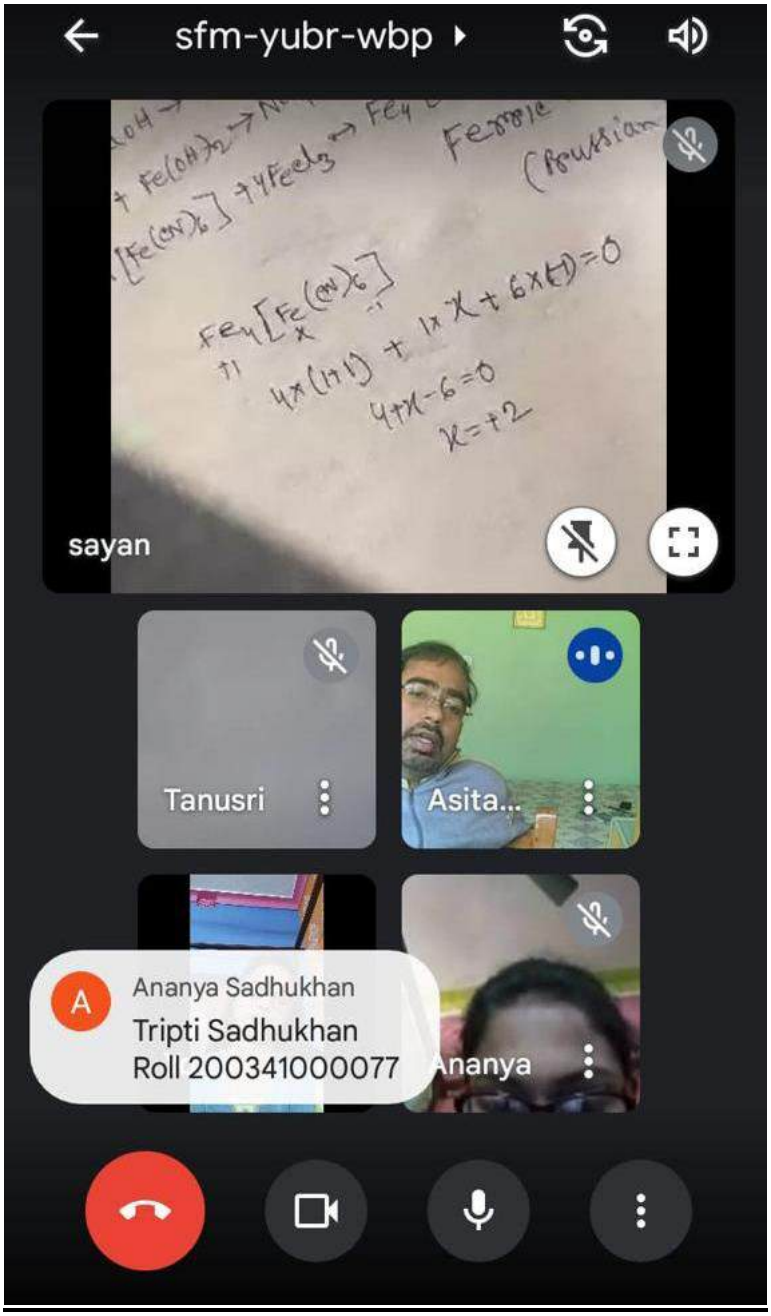
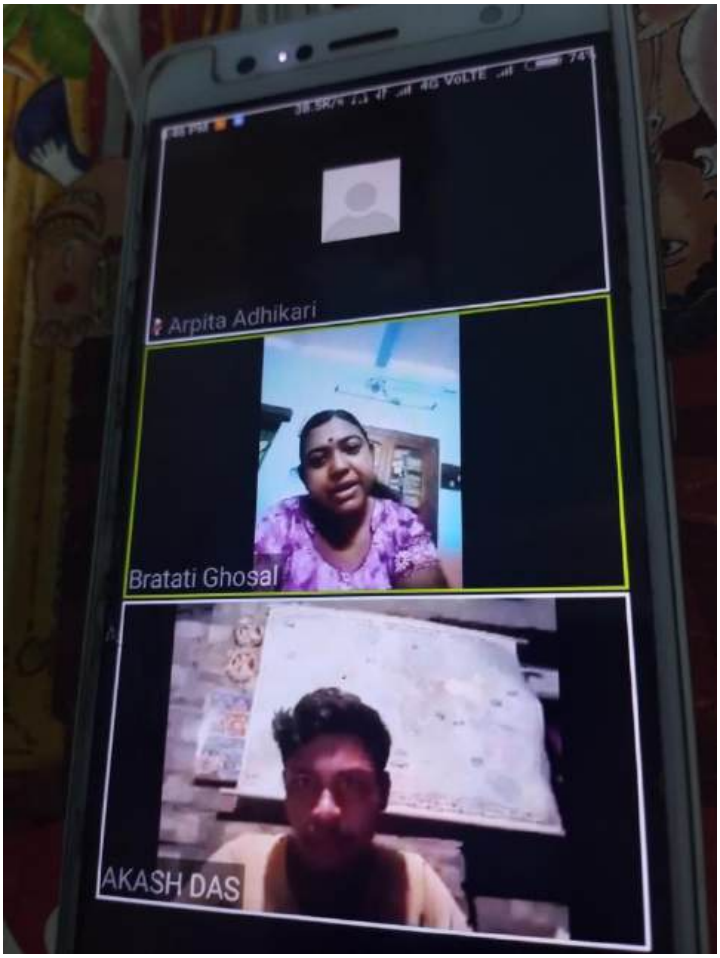

14-08-2024
ATTESTED
Principal
Rabindra Mahavidyalaya
Champadanga, Hooghly

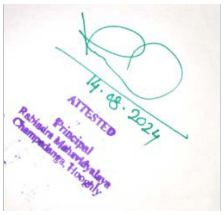
Practical Exam Viva (in presence of External)



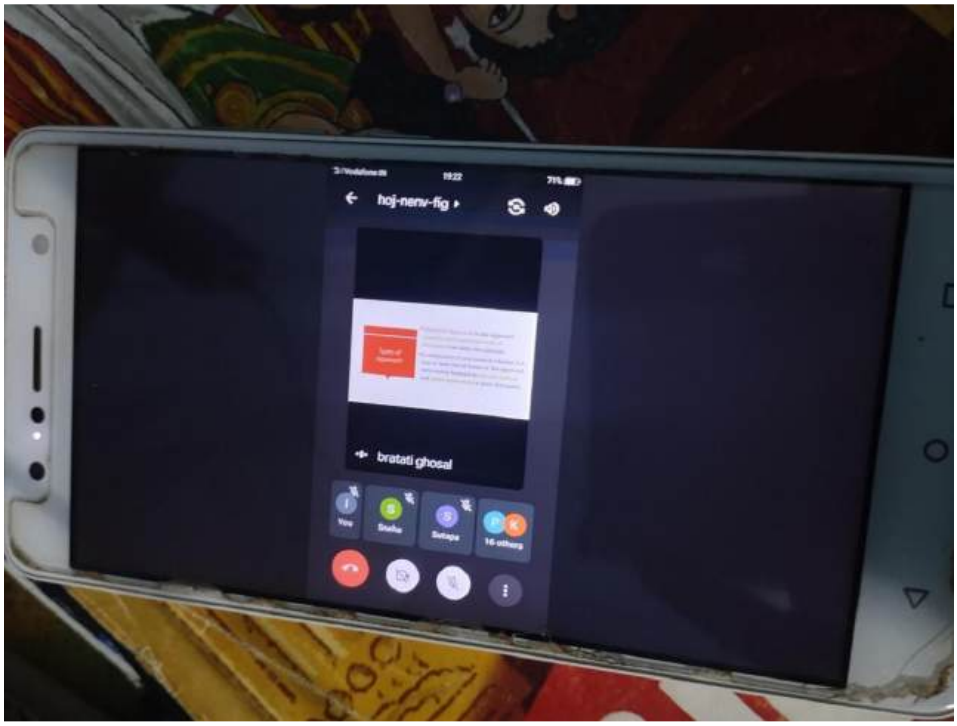
Department of Political Science



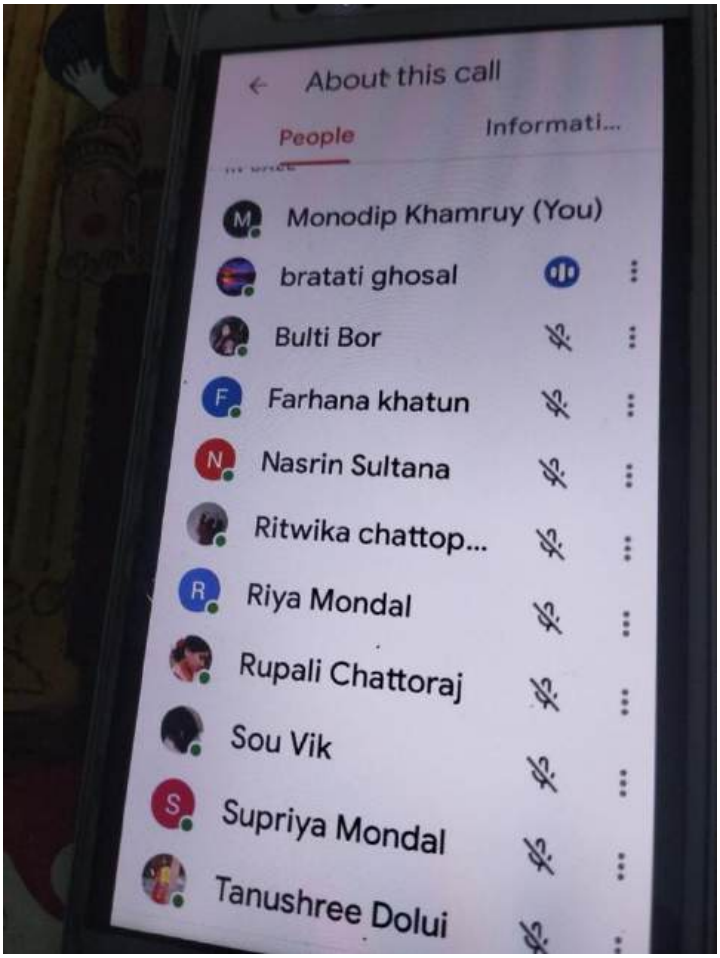
Online class taken by Bratati Ghosal, Assistant professor in Political Science for 6 th sem honours students (2020-21 session)



Online class for Semester-1 Hons students, taken by Bratati Ghosal, Assistant Prof.in Political Sc. (2020-21)



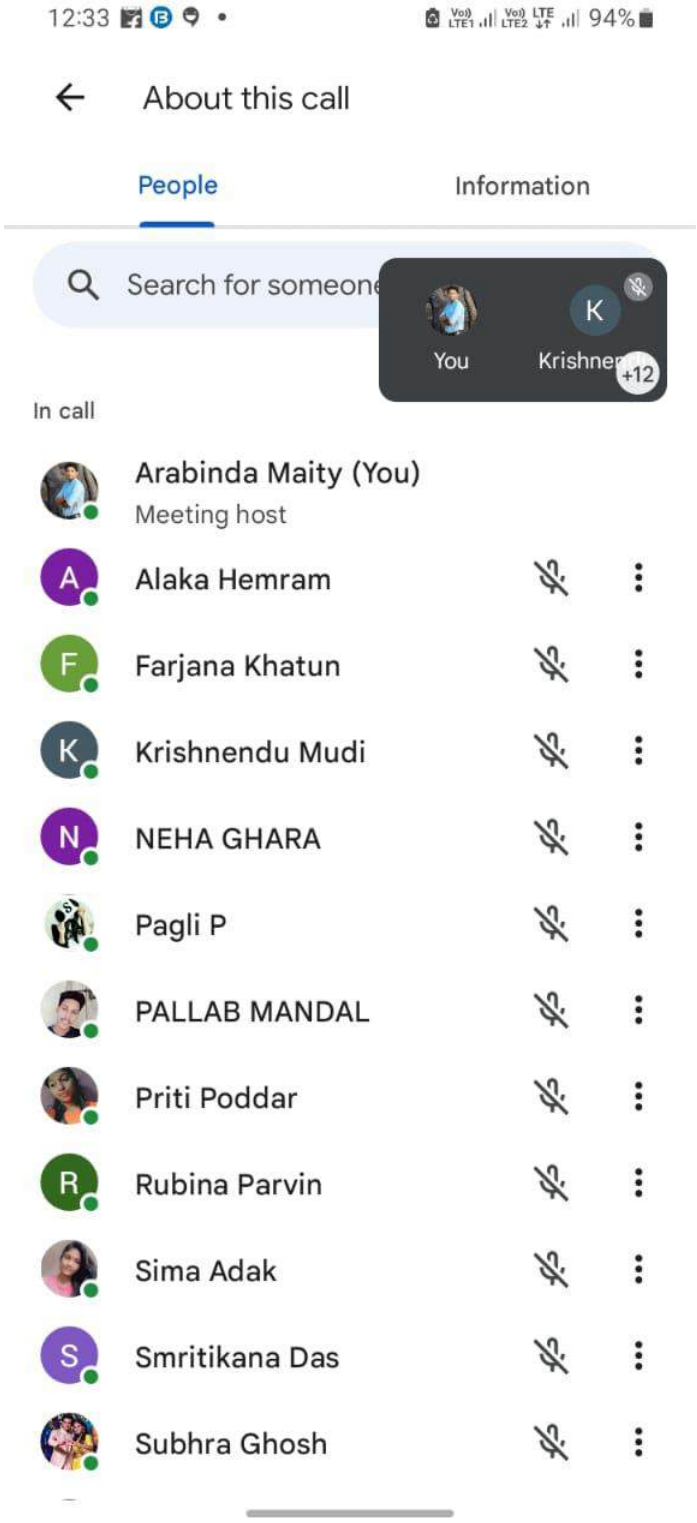
Online class for Political Science Sem-5 Hons students taken by Bratati Ghosal, Asst.professor for 2020-21

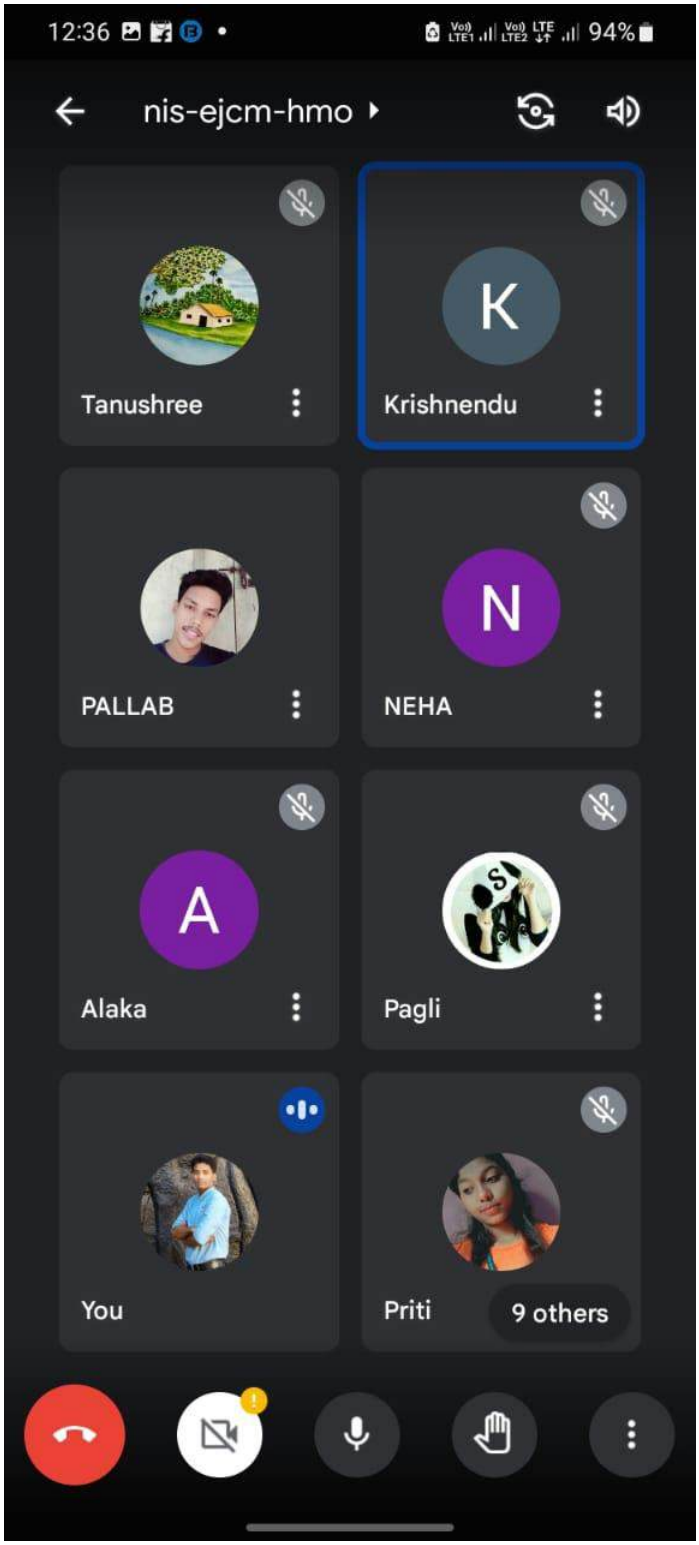


DEPARTMENT OF PHYSICAL EDUCATION (SESSION 2020-2021)

ONLINE CLASS - SEMESTER-1

CLASS TAKEN BY MR. ARABINDA MAITY , SACT, PHYSICAL EDUCATION





Topic: Renaissance in Italy.
Semester- III Honours
Paper- CC- VI
Lecture delivered by Prof. *Sujata Bandyopadhyay*, Department of History, Rabindra Mahavidyalaya, Champadanga in 2020.
https://www.youtube.com/watch?v=EJZaz7YRsiw

Rests of the departments also have followed the similar techniques to conduct classes and evaluate student performance. (Screenshots are not attached.)