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|--|---|-------------------|
|  <b>ATMIYA<br/>UNIVERSITY</b> | <b>NAAC – Cycle – 1</b><br><b>AISHE: U-0967</b> |                   |
|  | <b>Criterion 4</b>                              | <b>I &amp; LR</b> |
|  | <b>KI 4.3</b>                                   | <b>M 4.3.3</b>    |

## 5. Museum

| Sr. No. | Details with Geotagged Photographs | Page No. |
|---------|------------------------------------|----------|
| 1       | Accounting Museum                  | 2        |
| 2       | Pharmaceutics Museum               | 5        |
| 3       | Pharmacognosy Museum               | 16       |
| 4       | Zoology Museum                     | 19       |
| 5       | Botany Museum                      | 30       |
| 6       | Computer Museum                    | 39       |

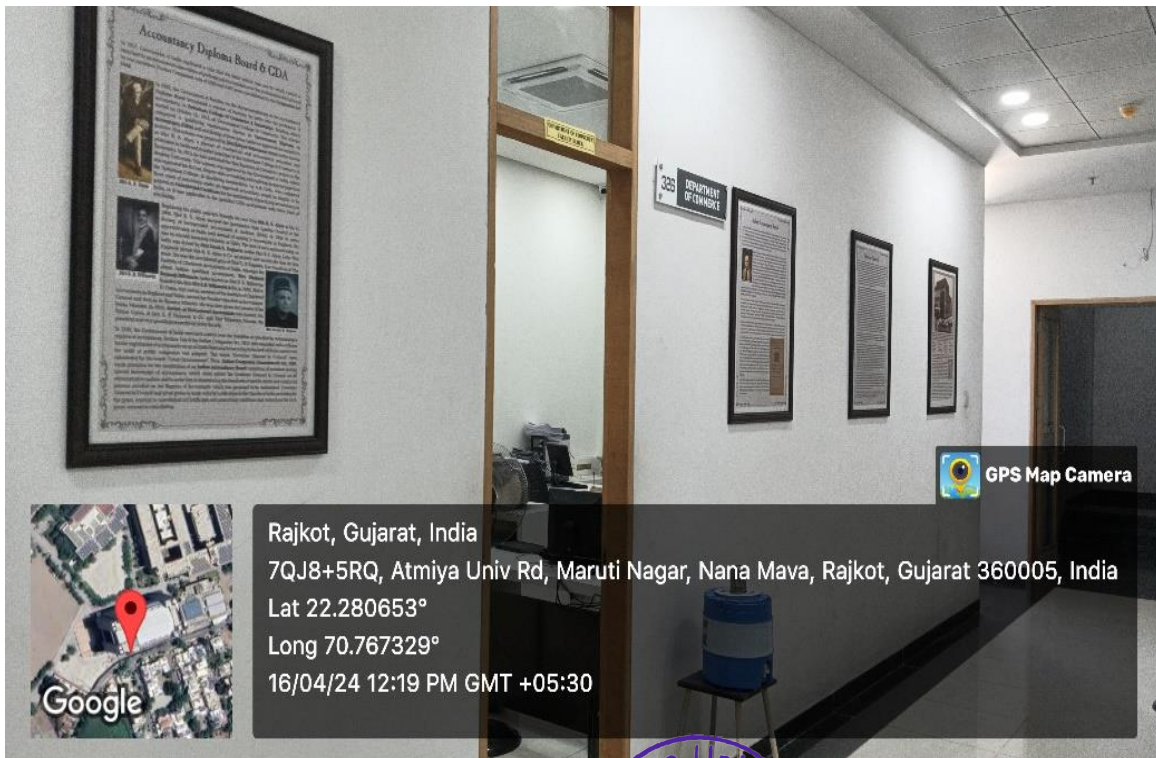




### **a) Accounting museum**

The Accounting Museum’s mission is to highlight the evolution of accounting in India and around the world. It showcases accounting techniques across ancient, medieval, and modern Indian history. The collection includes rare items that trace the development of bookkeeping, accounting, and the profession within India. Through papers, manuscripts, photos, and other historical artifacts, the museum captures the essence of various time periods in accounting. Notable exhibits include old balance papers from 1929, ICAI’s first balance sheet, and its first council report. Sculptures of figures significant to accounting, such as Kubera, Chanakya, and Luca Pacioli, further enrich the museum’s collection. This comprehensive display educates visitors on the deep-rooted legacy and progression of accounting practices.







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**Criterion 4**

**I & LR**

**KI 4.3**

**M 4.3.3**

**Plastic Moulding Frame Bill**

| FAMOUS PHOTO   |                              |                    |         |  |
|--|------------------------------|--------------------|---------|--|
| B/H BUS STAND, NEAR SHIV SHAKTI TRAVELS<br>RAJKOT. Mob. : 88 666 39 222 , 0281 222 62 94   |                              |                    |         |  |
| Debit Memo   |                              | BILL OF SUPPLY     |         | Original   |
| M/s. : ATMIYA UNIVERSITY   |                              | Bill No. : GT/300  |         |  |
| RAJKOT   |                              | Date : 27/02/2024  |         |  |
| Dept. :  |                              | TRANSPORT :        |         |  |
| Mo. :  |                              | L.R.NO :           |         |  |
|  |                              | L.R.DATE : //      |         |  |
| Sr.  | Product Name                 | Qty                | Rate    | Net Amount   |
| 1  | PLASTIC MOULDING FRAME PATTI | 13.000             | 1250.80 | 16260.40   |
| 2  | PLASTIC MOULDING FRAME PATTI | 16.000             | 1947.00 | 31152.00   |
| <b>Total</b>   |                              |                    |         | <b>47412.40</b>  |
| Bank Name : STATE BANK OF INDIA  |                              |                    |         |  |
| Bank A/c. No. : 37780197129  |                              |                    |         |  |
| RTGS/IFSC Code : SBIN0060172   |                              |                    |         |  |
| Bill Amount : Forty Seven Thousand Four Hundred Twelve Only  |                              | Round Off          |         | -0.40  |
| Note : PURCHASE ORDER NO. AU/FAME/PO/252-2023-24 DT. 26-02-2024  |                              | <b>Grand Total</b> |         | <b>47,412.00</b>   |
| Terms & Condition :<br>1. Goods once sold will not be taken back.<br>2. Interest @18% p.a. will be charged if payment is not made within due date.<br>3. Our risk and responsibility ceases as soon as the goods leave our premises.<br>4. "Subject to 'RAJKOT' Jurisdiction only. E.&O.E" |                              |                    |         | For, FAMOUS PHOTO<br><br>(Authorised Signatory) |





### b) Pharmaceuticals Museum

The Pharmaceuticals Museum at the School of Pharmaceutical Sciences, Atmiya University, is an educational display dedicated to showcasing a wide range of pharmaceutical dosage forms. The museum offers a comprehensive overview of various pharmaceutical products, both traditional and contemporary, providing a valuable learning resource for students, researchers, and visitors interested in the field of pharmaceutical sciences.





### **Objectives of the Pharmaceutics Museum**

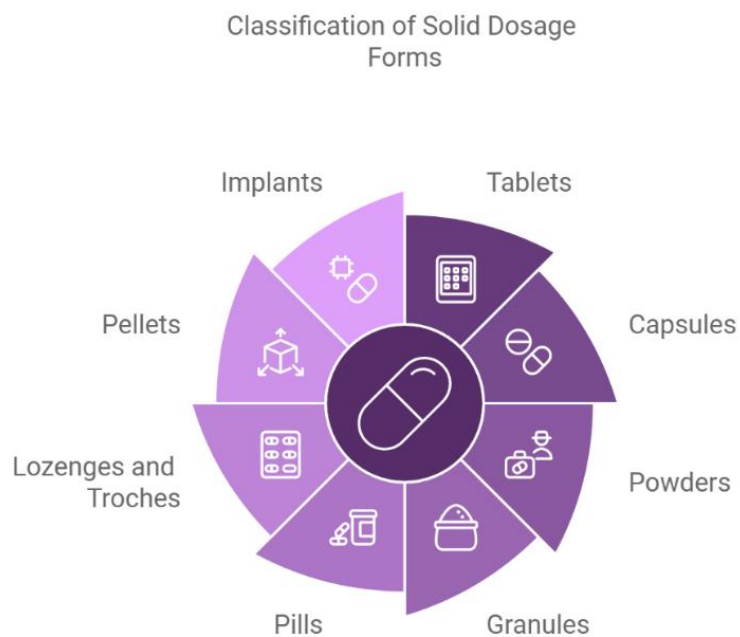
1. To enhance the educational experience of students by providing insights into the historical advancements and innovations in pharmaceutics.
2. To inspire research driven innovation by showcasing past breakthroughs in pharmaceutical technology and formulation sciences.
3. To act as a supplementary resource for students and researchers, aligning with the curriculum and fostering a deeper understanding of pharmaceutics.
4. To reflect the institution's dedication to quality education and holistic development by showcasing a well maintained and academically aligned museum.
5. To enhance students' practical understanding of pharmaceutical formulations.

### **Exhibits of the Pharmaceutics Museum**

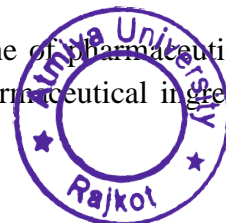
The exhibits include a variety of dosage forms such as:

#### **Solid dosage forms**

- Solid dosage forms are among the most used and widely accepted forms of pharmaceutical products due to their ease of administration, stability, and patient compliance.



- Solid dosage forms are the cornerstone of pharmaceutical formulations, designed to deliver precise amounts of active pharmaceutical ingredients (APIs) in a stable and





convenient manner. These forms play a crucial role in the delivery of drugs to patients, ensuring safety, efficacy, and quality.

### ***Solid dosage forms: Tablets***

- Tablets are solid, flat, or biconvex dosage forms prepared by compressing active ingredients with suitable excipients. They are the most popular dosage form due to their simplicity, cost effectiveness, and versatility.
- Types of Tablets
  - Immediate release tablets
  - Sustained release/Controlled release tablets
  - Effervescent tablets
  - Chewable tablets
  - Orodispersible tablets
  - Buccal and sublingual tablets



- Advantages of Tablets
  - Accurate dosing
  - Stability and ease of transportation
  - Variety in drug release profiles (e.g., immediate or controlled)

### ***Solid dosage forms: Capsules***

- Capsules are solid dosage forms in which the API is enclosed within a shell, typically made of gelatin or hydroxypropyl methylcellulose (HPMC). Capsules are preferred for drugs that require taste masking or are sensitive to air and light.
- Types of Capsules:
  - Hard Gelatin Capsules: Contain powdered or granular drugs.
  - Soft Gelatin Capsules: Enclose liquid or semisolid APIs.
- Advantages of Capsules:
  - Improved bioavailability for certain drugs
  - Taste masking of bitter drugs





- Flexibility in filling liquid, semisolid, or solid APIs



### ***Solid dosage forms: Powders***

- Powders are a dry, finely divided form of medication intended for oral or topical administration. They serve as the basis for various solid dosage forms or can be used independently.
- Types of Powders:
  - Bulk powders (dispensed in larger quantities)
  - Divided powders (individual doses in sachets or pouches)
- Advantages of Powders:
  - Faster dissolution compared to tablets or capsules
  - Flexibility in dosing
  - Suitable for paediatric and geriatric patients

Solid dosage forms such as tablets, capsules, and powders continue to dominate the pharmaceutical industry due to their versatility, cost effectiveness, and patient acceptability. Advances in formulation and manufacturing technologies are driving innovation in this area, making drug delivery more efficient and tailored to patient needs.

### **Liquid dosage forms**

- Liquid dosage forms are pharmaceutical preparations in which the active pharmaceutical ingredients (APIs) are dissolved, suspended, or dispersed in a suitable liquid medium. These forms are particularly useful for paediatric, geriatric, and patients with difficulty swallowing solid forms.
- Liquid dosage forms play a vital role in drug delivery, offering flexibility in dosing, rapid onset of action, and ease of administration. They are classified based on the nature of their physical state and the solubility of the APIs.

### ***Liquid dosage forms: Syrup***

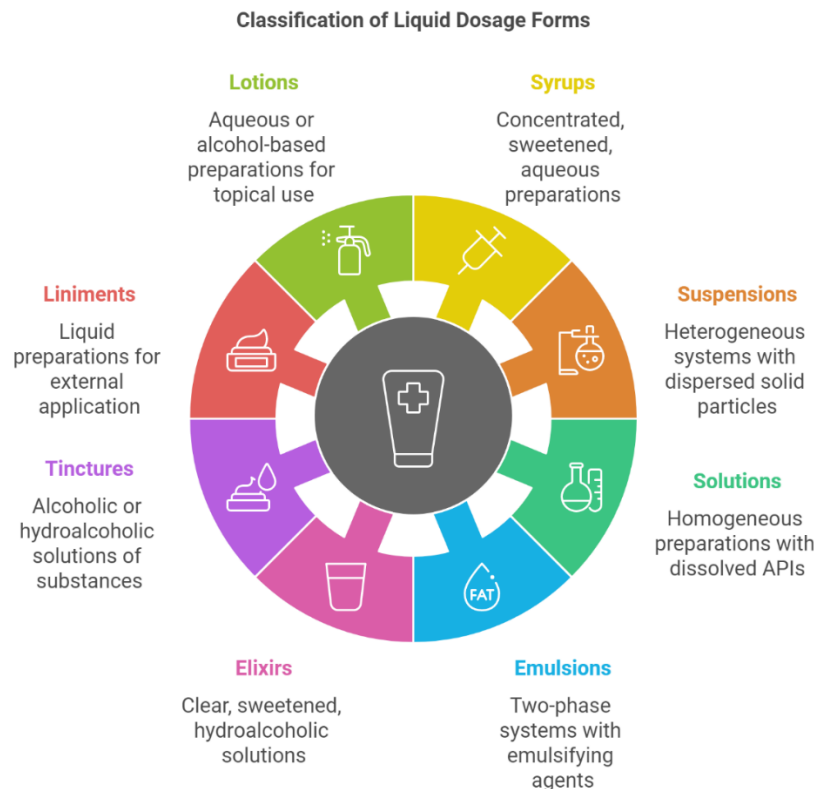
- Syrups are concentrated, viscous liquid preparations containing a high proportion of sugar (commonly sucrose) or sweetening agents, along with the active ingredient.







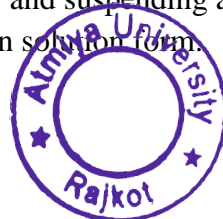
- Characteristics:
  - Sweet and flavoured to enhance palatability.
  - Primarily aqueous based but may contain alcohol as a cosolvent.
  - Viscosity provides soothing effects for throat irritation (e.g., cough syrups).



- Examples of Syrup:
  - Cough suppressants (e.g., dextromethorphan syrups).
  - Antipyretics (e.g., paracetamol syrups).
- Advantages of Syrup:
  - Masking the taste of bitter drugs.
  - Easy to swallow.

### ***Liquid dosage forms: Suspensions***

- Suspensions are heterogeneous systems where the solid particles of the drug are dispersed in a liquid medium. These are ideal for drugs with low solubility in water.
- Characteristics:
  - Require shaking before use to redisperse particles uniformly.
  - Contain stabilizers, wetting agents, and suspending agents to maintain stability.
  - Useful for drugs that are unstable in solution form.
- Examples of *Suspensions*:





- Antibiotics (e.g., amoxicillin suspension).
- Antacids (e.g., aluminium hydroxide suspension).
- Advantages:
  - Suitable for poorly soluble drugs.
  - Can accommodate larger doses of API.

### ***Liquid dosage forms: Solutions***

- Solutions are clear, homogeneous liquid preparations in which the drug is completely dissolved in a suitable solvent or mixture of solvents.
- Characteristics:
  - Can be aqueous or nonaqueous.
  - May include cosolvents like alcohol or glycerin for poorly watersoluble drugs.
  - Often require preservatives to prevent microbial growth.
- Examples of Solutions:
  - Oral rehydration salts (ORS solutions).
  - Antihistamine solutions (e.g., diphenhydramine solution).
- Advantages of Solutions:
  - Rapid absorption due to complete dissolution.
  - Uniform distribution of the drug in every dose.

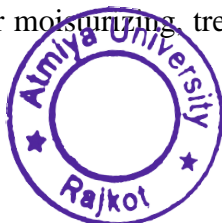
Liquid dosage forms such as syrups, suspensions, and solutions are indispensable in the pharmaceutical field for their ease of administration, dosing flexibility, and rapid therapeutic effects. Advances in formulation technology continue to enhance their stability, palatability, and patient acceptability.

### **Topical products**

- Topical pharmaceutical products are formulated for application to the skin or mucous membranes, offering local therapeutic effects. These dosage forms are designed to deliver active ingredients directly to the site of action, providing targeted treatment for various skin conditions or external ailments.
- Topical products are one of the most used forms of medication for external use. They are designed to provide effective, localized relief with minimal systemic absorption. These products are often used in dermatology, pain management, and to treat conditions such as infections, inflammation, and skin irritation.

### ***Topical products: Creams***

- Creams are semisolid emulsions of oil and water that are intended for external application. They are typically used for moisturizing, treating skin conditions, or as a vehicle for active ingredients.
- Characteristics:





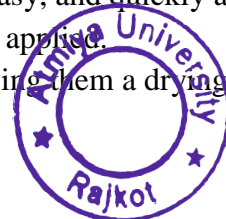
- Typically contain 50% water and 50% oil.
- Easier to spread on the skin and less greasy compared to ointments.
- Absorbed more rapidly by the skin.
- Can be either oil-in-water (O/W) or water-in-oil (W/O) emulsions, depending on their intended use.
- Uses of Creams:
  - Treating dry skin conditions (e.g., eczema, psoriasis).
  - Providing moisturization and soothing effects.
  - Delivering medications for local skin infections or inflammations.
- Examples:
  - Hydrocortisone cream for inflammation.
  - Antifungal creams for skin infections.

#### ***Topical products: Ointments***

- Ointments are thick, greasy, semisolid preparations that typically contain a higher proportion of oil than creams. They are used for more occlusive actions and are ideal for moisturizing dry, cracked, or irritated skin.
- Characteristics:
  - Generally, contain 80% oil and 20% water.
  - Greasier and slower to absorb compared to creams.
  - Create a protective barrier on the skin to prevent moisture loss.
  - Often used for long-lasting, localized treatment.
- Uses:
  - Treating dry or chapped skin.
  - Delivering active ingredients in conditions requiring prolonged contact (e.g., wounds, burns, or rashes).
  - Providing a barrier to protect the skin from external irritants.
- Examples:
  - Zinc oxide ointment for diaper rash.
  - Antibiotic ointments like Neosporin.

#### ***Topical products: Gels***

- Gels are semisolid systems that are typically composed of a water-based solution of active ingredients and a gelling agent. They are used for their cooling, quick drying, and nongreasy properties.
- Characteristics:
  - Transparent or translucent, nongreasy, and quickly absorbed by the skin.
  - Can provide a cooling effect when applied.
  - Often formulated with alcohol, giving them a drying effect.





- Contain water or alcohol as the primary solvent.
- Uses:
  - For treating acne, as they allow for easy penetration without leaving a greasy residue.
  - Relieving pain or inflammation, especially in conditions such as arthritis or muscle strains.
  - Providing anti-inflammatory or antimicrobial effects to the skin.
- Examples:
  - Benzoyl peroxide gel for acne treatment.
  - Diclofenac gel for pain and inflammation relief.

Topical products such as creams, ointments, and gels offer localized treatment with various benefits depending on the condition and formulation. Understanding their characteristics and appropriate applications allows for more effective therapeutic outcomes, providing patients with tailored solutions for their skin related needs.

### Parenteral products

- Parenteral products are pharmaceutical preparations intended for administration through a route other than the digestive tract, most commonly via injection. These products are designed to provide rapid therapeutic effects, making them essential in emergency care, intravenous therapy, and conditions requiring immediate or controlled drug delivery.

#### Parenteral Product Formulations





- Parenteral administration allows for the direct delivery of active ingredients into the bloodstream or tissues, bypassing the gastrointestinal tract. This route is ideal for patients who cannot take oral medications, for drugs that are poorly absorbed orally, or when a rapid onset of action is required. The most common forms of parenteral products are injections and ampoules, which are carefully formulated to ensure sterility, stability, and precise dosing.

### ***Parenteral products: Injections***

- Injections are sterile liquid preparations designed for administration via various parenteral routes, such as intravenous (IV), intramuscular (IM), or subcutaneous (SC). They are commonly used for rapid and controlled drug delivery.
- Characteristics:
  - Typically consist of sterile, liquid solutions or suspensions.
  - Can be formulated with or without added stabilizers, preservatives, and buffers to ensure compatibility and efficacy.
  - The product is designed to be injected directly into the body using a syringe and needle.
- Types of Injections:
  - Intravenous (IV) Injections: Administered directly into the vein, providing immediate action. Common for fluids, electrolytes, and drugs requiring rapid onset (e.g., pain management, emergency treatments).
  - Intramuscular (IM) Injections: Administered into the muscle, allowing for slower absorption compared to IV. Common for vaccines, hormones, and certain antibiotics.
  - Subcutaneous (SC) Injections: Administered beneath the skin, offering a slower absorption rate than IM. Common for insulin, vaccines, and certain biologics.
  - Intraarticular Injections: Administered into the joint for conditions like arthritis.
  - Intrathecal Injections: Administered into the cerebrospinal fluid, typically for anaesthesia or chemotherapy.
- Uses:
  - Rapid administration of drugs (e.g., pain relievers, antibiotics, chemotherapy).
  - Vaccination.
  - Emergency treatments for conditions like anaphylaxis or seizures.
  - Hormone therapies (e.g., insulin, testosterone).
- Examples:
  - Morphine injection for pain relief.
  - Heparin injection for anticoagulation therapy.



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## Ampoules

- Ampoules are small, sealed glass containers designed to hold sterile liquid doses of medications for injection. They are commonly used for single dose injections and provide an airtight and sterile environment for the drug.
- Characteristics:
  - Made from glass, although plastic versions are also available.
  - Typically hermetically sealed by melting the neck, which can be broken to access the medication.
  - Ampoules are designed for one time use, ensuring the drug remains sterile and free from contamination.
  - Often come in small volumes (usually 110 mL).
- Uses:
  - Containing drugs that are used in emergencies or specific therapeutic applications (e.g., anesthetics, vaccines).
  - Ideal for drugs that must remain sterile until the moment of administration.
  - Single dose packaging prevents contamination from multiple uses.
- Examples:
  - Adrenaline (epinephrine) ampoules for anaphylaxis treatment.
  - Potassium chloride ampoules for electrolyte replacement.
- Parenteral products, including injections and ampoules, are crucial for delivering therapeutic agents when immediate effect or specific control over the drug's action is needed. These products require precise formulation and handling to ensure their effectiveness and safety. Their wide application across various therapeutic areas—from emergency medicine to long-term treatments—highlights their indispensable role in modern healthcare.

**Specialized dosage forms:** including aerosols and ophthalmic preparations

- Specialized dosage forms are designed to deliver medications in unique ways, targeting specific routes of administration or therapeutic areas. Two common types of specialized dosage forms include aerosols and ophthalmic preparations, both of which serve distinct purposes in medical treatment.

**Specialized dosage forms: Aerosols**

- Aerosols are dosage forms that deliver medication in the form of a fine mist or spray, typically intended for inhalation or topical application. They are pressurized products containing an active ingredient and a propellant.
- Characteristics:
  - Designed for inhalation or topical use.





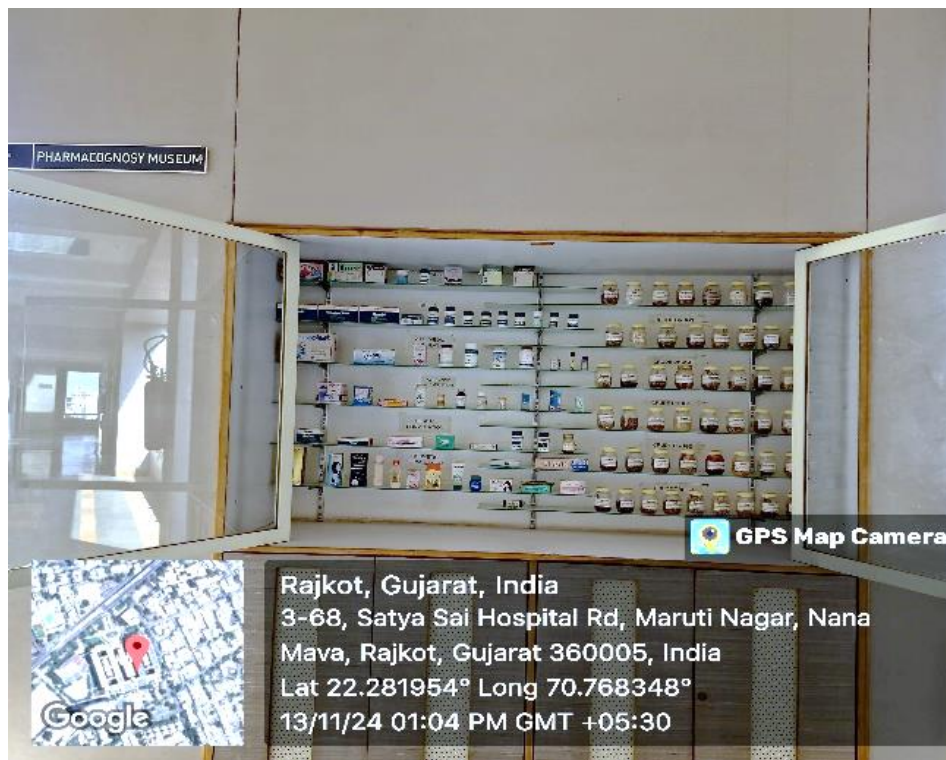
- Often used for respiratory diseases (e.g., asthma, COPD) or topical treatments (e.g., for acne or dermatitis). Aerosols provide rapid delivery and precise dosing, often through inhalers or spray cans.



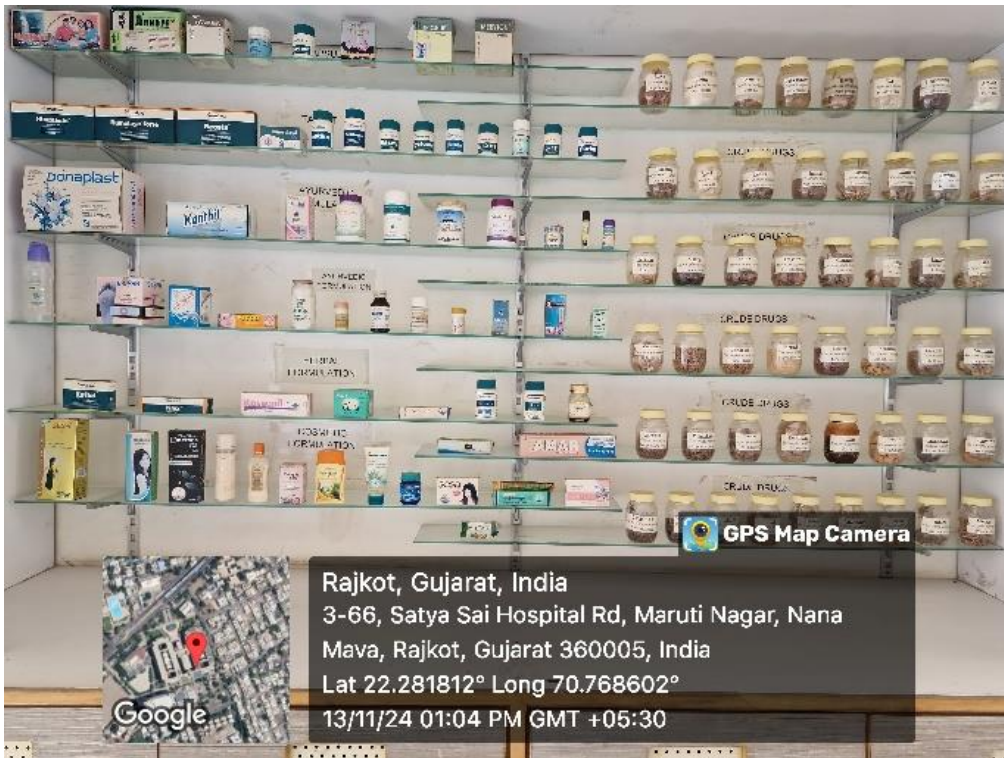


### c) Pharmacognosy Museum

The Pharmacognosy Museum at the Pharmacy Department provides an educational display focused on herbal dosage forms. It features a curated collection of medicinal plants, crude drugs, and traditional herbal formulations, giving students hands-on exposure to natural sources of medicine. Each exhibit is organized with detailed labels for easy identification, enabling students to study the origins, characteristics, and uses of medicinal plants. The museum aims to deepen students' understanding of natural products in pharmacy, highlighting the importance of plant-based medicine in both traditional and modern healthcare practices.







**List of Displayed Formulations**

| <b>Herbal Formulation</b>  | <b>Cosmetic Formulation</b>  | <b>Ayurveda Formulation</b>   | <b>Ayurvedic Formulation</b>   |
|--|--|---|--|
| Himplasia<br>Rhumalaya forte<br>Roesto<br>Eye Care<br>Bresol<br>Khaflet<br>Eyecare<br>Pilex<br>Guduchi<br>Vrikshamia<br>Septilin<br>Rumalaia<br>Liv 52<br>Gasex<br>Cystone | Patanjali keshkanti<br>Everyuth natural<br>Ayur Deep cleaning<br>Sesa Oil<br>Facewash<br>Protein shampoo<br>Neem face wash<br>Ayur Sun screen<br>Olivia Herb bleach<br>Cosmo silky hair remover<br>Sesa Herbal hair soap<br>Himalayan Almond soap<br>Amar toothpaste | Ratarikar<br>Feelfresh<br>Drishti<br>Keshratna<br>Vicks vaporab<br>Vicco turmeric<br>Acnovin Cream<br>Charogari<br>Rosacnil gel<br>Rasayn churna<br>Ashwagandha Churna<br>Triphala Churna<br>Dabur Chavanprash<br>Dabur honey | <b>Tablets</b><br>Healthsun Ayurvedic<br>Kanthil<br>Sleepfills<br>Fatless<br>Pudina<br><b>Capsule</b><br>Arrnpen<br>Rutaforte<br>Trchup<br>Alert<br><b>Gel</b><br>Acnovin<br>Nilton<br>Rosacnil gel<br>Nilton SPF<br>Ointment:-<br>Vicco cream |





**List of displayed Crude Drugs**

| <b>Stem</b> | <b>Rhizome</b> | <b>Flower</b> | <b>Enzyme</b> | <b>Seed</b> | <b>Fruit</b> | <b>Gum</b> |
|-------------|----------------|---------------|---------------|-------------|--------------|------------|
| Apamarg     | Ginger         | Eucalptus     | Eucalptus     | Hyosyamus   | Caradmom     | Acacia     |
| Ephedra     | Piccorrhiza    | Colchium      | Colchium      | Cofee       | Blackpepper  | Tragacanth |
| Punarnava   | Tumeric        | Cinchona      | Cinchona      | Nux         | Caraway      | Guggul     |
| Dioscorea   | Aconite        | Lobelia       | Lobelia       | vomica      | Nutmeg       | Beeswax    |
| Quassia     | Rauwolfia      | Cinnamon      | Cinnamon      | Linseed     | Corainder    | Wool       |
|             | Gentian        | Kurchi        | Kurchi        | Issabgol    | Dill         | Silk       |
|             | Podophyllum    | Cassia        | Cassia        |             |              | Benzoin    |
|             | Senega         | Clove         | Clove         |             |              |            |
|             | Ashwagandha    |               |               |             |              |            |
|             | Liuquorice     |               |               |             |              |            |





#### **d) Zoology Museum**

This extensive zoology museum collection demonstrates the comprehensive educational resources available for zoological studies. The diverse categories include:

#### **Preserved Systems and Organs**

- **Shark (Scoliodon):** Systems such as digestive, arterial, urinogenital, and the brain.
- **Earthworm:** Complete anatomy including circulatory, reproductive, excretory, digestive, and nervous systems.
- **Calotes:** Digestive, respiratory, heart, and arterial systems.
- **Human Anatomy:** Nervous system, skin, and cellular components like DNA, mitochondria, and chromosomes.

#### **Microscopic Zoology Slides**

##### **Slides cover:**

- Protozoa (e.g., *Amoeba proteus*, *Paramecium*, *Noctiluca*).
- Parasitic organisms (e.g., *Plasmodium*, *Enterobius*, *Liver fluke*).
- Tissues and systems (e.g., nerve cells, muscles, amphibian eggs, and embryology stages).
- Insect and arthropod anatomy (*Cockroach trachea*, *Honeybee mouthparts*).

#### **Specimens of Various Phyla**

1. **Porifera:** Includes *Leucosolenia*, *Grantia*, and *Euspongia*.
2. **Cnidaria:** Represented by *Aurelia*, *Sea Anemone*, and *Corals*.
3. **Platyhelminthes and Nematoda:** Examples like *Tape Worm*, *Liver Fluke*, and *Ascaris*.
4. **Annelida:** Species such as *Leech*, *Earthworm*, and *Nereis*.
5. **Mollusca:** Includes *Octopus*, *Unio*, and *Loligo*.
6. **Arthropoda:** Diverse specimens including *Scorpion*, *Crab*, *Butterfly*, and *Spider*.
7. **Echinodermata:** Notable examples are *Starfish*, *Sea Urchin*, and *Feather Star*.
8. **Chordates: Pisces**
  - **Amphibia:** *Toad*, *Frog*, *Salamander*.
  - **Reptilia:** Snakes like *Python*, *King Cobra*, and *Russell's Viper*.
  - **Aves:** Birds such as *Weaver Bird*, *Parrot*, and *Owl*.
  - **Mammals:** Includes *Bat*, *Rat*, *Platypus*, and *Squirrel*.

#### **Applications**





**1. Educational Value:**

- Ideal for undergraduate and postgraduate studies in zoology.
- Provides hands-on learning for anatomy, taxonomy, and ecological studies.

**2. Research Support:**

- Aids research in comparative anatomy and physiology.

**3. Conservation Awareness:**

- Displays specimens from various ecosystems promoting biodiversity conservation.

Such a museum fosters a deeper understanding of animal diversity and evolutionary biology.





**List of Zoology Chart**

| Sr. No. | Name                                 |
|---------|--------------------------------------|
| 1       | Scoliodon digestive system           |
| 2       | Scoliodon arterial system            |
| 3       | Scoliodon urinogenital system        |
| 4       | Scoliodon brain                      |
| 5       | Brain of shark                       |
| 6       | Human skin                           |
| 7       | Human nervous system                 |
| 8       | Typical animal cell                  |
| 9       | Earth worm : circulatory system      |
| 10      | Earth worm : external features       |
| 11      | Earth worm : excretory system        |
| 12      | Earth worm : reproductive system     |
| 13      | Earth worm : nervous system          |
| 14      | Earth worm : digestive system        |
| 15      | Digestive system of shark            |
| 16      | Deoxyribo nucleic acid               |
| 17      | Mitochondrion                        |
| 18      | Endoplasmic reticulum                |
| 19      | Snakes : poisonous and non poisonous |



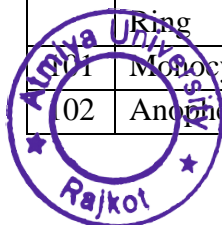


|    |  |
|----|--|
| 20 | Calotes : heart and arterial system        |
| 21 | Calotes : digestive and respiratory system |
| 22 | Calotes : urinogenital system              |
| 23 | Amphioxus : development (later)            |
| 24 | Amphioxus : development (early)            |
| 25 | Amphioxus : external features              |
| 26 | Amphioxus : transverse sections            |
| 27 | Amphioxus : digestive system               |
| 28 | Nucleus                                    |
| 29 | Chromosomes                                |

**List of zoology slide**

| Sr. No. | Name                  | Quantity |
|---------|-----------------------|----------|
| 1       | Amoeba Proteus        | 3        |
| 2       | Hydra                 | 5        |
| 3       | Hydra With Budding    | 2        |
| 4       | Entamoeba             | 4        |
| 5       | Paramecium            | 3        |
| 6       | Enterobius            | 2        |
| 7       | Vorticella            | 5        |
| 8       | Arcella               | 1        |
| 9       | Noctiluca             | 3        |
| 10      | Obelia Colony         | 1        |
| 11      | Opalina               | 3        |
| 12      | Vermicularis          | 2        |
| 13      | Daphnia               | 1        |
| 14      | Euglena               | 2        |
| 15      | Doliolum              | 1        |
| 16      | Sponge Spicules       | 1        |
| 17      | Sponge Gemmules       | 1        |
| 18      | Monocystis Sporozoite | 2        |
| 19      | Ceratium              | 2        |
| 20      | Spongilla             | 1        |

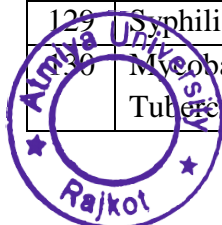
| Sr. No. | Name                             | Quantity |
|---------|----------------------------------|----------|
| 82      | Mammalian Artery T.S.            | 1        |
| 83      | Human Female Gonade              | 2        |
| 84      | Frog Kidney                      | 2        |
| 85      | Frog Intestine                   | 3        |
| 86      | Frog Stomach C.S.                | 1        |
| 87      | Frog Spleen T.S.                 | 1        |
| 88      | Frog Fat Body                    | 1        |
| 89      | Frog Liver T.S.                  | 2        |
| 90      | Hydra Ovary                      | 1        |
| 92      | Cockroach Trachea W.M.           | 1        |
| 93      | Cockroach Ovary                  | 1        |
| 94      | Cockroach Gizzard                | 2        |
| 95      | Cockroach Salivary Glands        | 1        |
| 96      | Tadpole L.S.                     | 1        |
| 97      | Frog Pancreas                    | 2        |
| 98      | Foraminifera (Planor Bawna)      | 2        |
| 99      | Malaria Parasite In Humman Blood | 1        |
| 100     | Malaria Parasite Signet          | 1        |
| 101     | Monocystis Mixed                 | 1.       |
| 102     | Anopheles Egg                    | 7        |





|    |                               |   |
|----|-------------------------------|---|
| 21 | Hook Worm                     | 3 |
| 22 | Tape Worm Mature Proglottid   | 3 |
| 23 | Tape Worm Scolex              | 8 |
| 24 | Pin Worm                      | 4 |
| 25 | Guinea Worm                   | 3 |
| 26 | Planaria                      | 5 |
| 27 | Plasmodium In Blood           | 2 |
| 28 | Filaria                       | 1 |
| 29 | Trypanosoma In Blood          | 4 |
| 30 | Dracunculus                   | 2 |
| 31 | Liver Fluke Radia W.M.        | 3 |
| 32 | Liver Fluke Cercaria W.M.     | 3 |
| 33 | Liver Fluke Metacercaria W.M. | 2 |
| 34 | Liver Fluke T.S.              | 2 |
| 35 | Liver Fluke Eggs              | 2 |
| 36 | Liver Fluke Sporocyst         | 2 |
| 37 | Cuscuta With Host T.S.        | 2 |
| 38 | Pennaria                      | 1 |
| 39 | Cysticerus                    | 1 |
| 40 | House Fly                     | 1 |
| 41 | House Fly M. P.               | 2 |
| 42 | Honey Bee M. P.               | 3 |
| 43 | Culex Male M.P.               | 3 |
| 44 | Culex Female M.P.             | 5 |
| 45 | Mosquito M.P.                 | 1 |
| 46 | Anopheles Female M.P.         | 1 |
| 47 | Anopheles Male M.P.           | 2 |
| 48 | Bed Bug M.P.                  | 1 |
| 49 | Anopheles Head                | 1 |

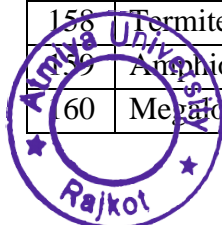
|     |                                  |   |
|-----|----------------------------------|---|
| 103 | Culex Egg                        | 5 |
| 104 | Culex Larva                      | 9 |
| 105 | Anopheles Larva                  | 5 |
|     | Anopheles Pupa                   | 8 |
| 106 | Culex Pupa                       | 5 |
| 107 | Anopheles Male                   | 1 |
| 108 | Anopheles Female                 | 2 |
| 109 | Culex Female                     | 3 |
| 110 | Culex Male                       | 3 |
| 111 | Earth Worm Pharyngeal Region     | 3 |
| 112 | Earth Worm Gizzard               | 4 |
| 113 | Earth Worm Typhlosole Region     | 4 |
| 114 | Earth Worm Semina Vesicle Region | 3 |
| 115 | Earth Worm Intestine             | 2 |
| 116 | Earth Worm Septal Nephredia      | 1 |
| 117 | Earth Worm C.S. Clitellum        | 1 |
| 118 | Earth Worm Testis T.S.           | 1 |
| 119 | Earth Worm Ovary                 | 1 |
| 120 | Ascaris C.S. Male                | 1 |
| 121 | T.S. Through Blood Gland Sec.    | 1 |
| 122 | T.B.                             | 1 |
| 123 | Small Pox                        | 1 |
| 124 | Typhoid                          | 1 |
| 125 | Poliyo                           | 1 |
| 126 | Numania                          | 1 |
| 127 | Cholera                          | 1 |
| 128 | Decentry                         | 1 |
| 129 | Syphilis                         | 1 |
| 130 | Mycobacterium Tuberculosis       | 1 |





|    |                         |   |
|----|-------------------------|---|
| 50 | Cockroach M.P.          | 2 |
| 51 | Butter Fly M.P.         | 3 |
| 52 | Mammal Nervous Tissue   | 1 |
| 53 | Nerve Cell              | 1 |
| 54 | Medullated Nerve Fibers | 1 |
| 55 | Cartilage               | 1 |
| 56 | Epithelium Squamous     | 2 |
| 57 | Ciliated Epithelium     | 1 |
| 58 | Muscles Unstriated      | 1 |
| 59 | Muscles Smooth          | 1 |
| 60 | Muscles Unstriated      | 1 |
| 61 | Muscles Cardiac         | 1 |
| 62 | Muscles Striated        | 5 |
| 63 | Testis                  | 2 |
| 64 | Amphibian (Frog) Testis | 3 |
| 65 | Mammalian Testis        | 1 |
| 66 | Hydra Testis            | 4 |
| 67 | Amphibian (Frog) Ovary  | 3 |
| 68 | Amphibian Sperm         | 2 |
| 69 | Mammal Kidney           | 4 |
| 70 | Mammal Thyroid          | 2 |
| 71 | Bone                    | 1 |
| 72 | Mammal Lung             | 4 |
| 73 | Mammal Intestine        | 3 |
| 74 | Mammal Skin             | 2 |
| 75 | Mammal Stomach          | 3 |
| 76 | Mammal Pancreas         | 2 |
|    | Mammal Liver            | 4 |
| 77 | Mammal Tongue           | 1 |
| 78 | Mammalian Parathyroid   | 1 |

|     |                              |   |
|-----|------------------------------|---|
| 131 | Influenza                    | 1 |
| 132 | Amphibian Egg (Frog)         | 3 |
| 133 | Amphibian Egg 2-Cell Stage   | 3 |
| 134 | Amphibian Egg 4- Cell Stage  | 3 |
| 135 | Amphibian Egg 8- Cell Stage  | 1 |
| 136 | Amphibian Egg 16- Cell Stage | 2 |
| 137 | Amphibian Egg 32- Cell Stage | 1 |
| 138 | Early Cleavage Frog          | 1 |
| 139 | Late Cleavage Frog           | 1 |
| 140 | Frog Gastrula                | 4 |
| 141 | Frog Blastula                | 3 |
| 142 | Amphibian Morula             | 1 |
| 143 | Chick Embryology 18 Hrs      | 2 |
| 144 | Chick Embryology 21 Hrs      | 1 |
| 145 | Chick Embryology 24 Hrs      | 1 |
| 146 | Chick Embryology 36 Hrs      | 2 |
| 147 | Chick Embryology 48 Hrs      | 3 |
| 148 | Chick Embryology 72 Hrs      | 3 |
| 149 | Ctenoid Scales               | 1 |
| 150 | Cycloid Scales               | 1 |
| 151 | Rhomboid Scales              | 1 |
| 152 | Placoid Scales               | 1 |
| 153 | Head Louse                   | 4 |
| 154 | Termite Soldier              | 1 |
| 155 | Rat- Flea                    | 1 |
| 156 | Bed Bug W.M.                 | 2 |
| 157 | Tick W.M.                    | 1 |
| 158 | Termite Worker               | 2 |
| 159 | Amphioxus                    | 4 |
| 160 | Megalopa Larva               | 1 |





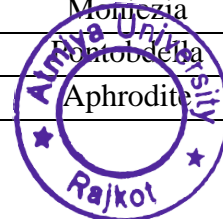


|    | Gland                   |   |
|----|-------------------------|---|
| 79 | Mammalian Duodenum T.S. | 3 |
| 80 | Mammalian Spleen T.S.   | 1 |
| 81 | Mammalian Vein T.S.     | 1 |

|     |                 |   |
|-----|-----------------|---|
| 161 | Zoea Larva      | 1 |
| 162 | Adrenal Gland   | 1 |
| 163 | Pituitary Gland | 1 |

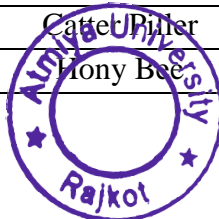
**List of Zoology Specimen**

| Sr. No. | Phylum                           | Example       | No. Of Speciment | Remark |  |
|---------|----------------------------------|---------------|------------------|--------|--|
| 1       | Porifera                         | Lecosolenia   | 2                |        |  |
| 2       |                                  | Bath Sponge   | 1                |        |  |
| 3       |                                  | Grantia       | 1                |        |  |
| 4       |                                  | Chalina       | 1                |        |  |
| 5       |                                  | Euplectella   | 2                |        |  |
| 6       |                                  | Euspongia     | 2                |        |  |
| 7       |                                  | Sycon         | 1                |        |  |
| 8       | Colentrata                       | Aurelia       | 6                |        |  |
| 9       |                                  | Red Coral     | 1                |        |  |
| 10      |                                  | Zooanthus     | 2                |        |  |
| 11      |                                  | Metridium     | 1                |        |  |
| 12      |                                  | Penatula      | 1                |        |  |
| 13      |                                  | Astropecton   | 1                |        |  |
| 14      |                                  | Sea Anemon    | 1                |        |  |
| 15      | Platyhalminthes/<br>Ashelminthes | Gorgonia      | 1                |        |  |
| 16      |                                  | Obelia        | 1                |        |  |
| 17      |                                  | Schistosoma   | 1                |        |  |
| 18      |                                  | Tape Worm     | 5                |        |  |
| 19      |                                  | Bipalium      | 1                |        |  |
| 20      |                                  | Planaria      | 1                |        |  |
| 21      |                                  | Land Planaria | 1                |        |  |
| 22      |                                  | Guenia Worm   | 1                |        |  |
| 23      |                                  | Liver Fluke   | 1                |        |  |
| 24      |                                  | Ascaris       | 4                |        |  |
| 25      |                                  | Hook Worm     | 1                |        |  |
| 26      |                                  | Annelida      | Moniezia         | 1      |  |
| 27      |                                  |               | Pontobdella      | 2      |  |
| 28      | Aphrodite                        |               | 2                |        |  |



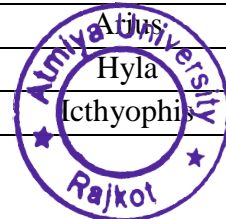


|    |            |              |   |  |
|----|------------|--------------|---|--|
| 29 |            | Leech        | 1 |  |
| 30 |            | Nereis       | 2 |  |
| 31 |            | Earth Worm   | 3 |  |
| 32 |            | Arenicola    | 1 |  |
| 33 | Mollusca   | Unio         | 2 |  |
| 34 |            | Chiton       | 2 |  |
| 35 |            | Limnea       | 1 |  |
| 36 |            | Loligo       | 3 |  |
| 37 |            | Octopus      | 3 |  |
| 38 |            | Mytilus      | 1 |  |
| 39 |            | Perl Oyster  | 1 |  |
| 40 |            | Pila         | 2 |  |
| 41 |            | Petella      | 2 |  |
| 42 |            | Dentalium    | 2 |  |
| 43 |            | Aplysia      | 1 |  |
| 44 |            | Doris        | 1 |  |
| 45 | Arthropoda | White Ant    | 1 |  |
| 46 |            | Locust       | 1 |  |
| 47 |            | Ranatra      | 2 |  |
| 48 |            | Limulus      | 2 |  |
| 49 |            | Scorpion     | 2 |  |
| 50 |            | Dragon Fly   | 1 |  |
| 51 |            | Crab         | 5 |  |
| 52 |            | Leaf Insect  | 1 |  |
| 53 |            | Centipede    | 2 |  |
| 54 |            | Weveel       | 1 |  |
| 55 |            | Silk Worm    | 1 |  |
| 56 |            | Termite      | 1 |  |
| 57 |            | Grylotalpa   | 1 |  |
| 58 |            | Spider       | 2 |  |
| 59 |            | Cray Fish    | 1 |  |
| 60 |            | Milipede     | 3 |  |
| 61 |            | Prawn        | 2 |  |
| 62 |            | Peripetus    | 1 |  |
| 63 |            | Butter Fly   | 1 |  |
| 64 |            | Stick Insect | 1 |  |
| 65 |            | Caterpillar  | 1 |  |
| 66 |            | Honey Bee    | 1 |  |



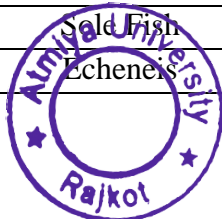


|     |                 |                           |   |  |
|-----|-----------------|---------------------------|---|--|
| 67  |                 | Lobster                   | 2 |  |
| 68  |                 | Bumble Bee                | 1 |  |
| 69  | Echinodermata   | Sea Cucumber              | 4 |  |
| 70  |                 | Star Fish                 | 4 |  |
| 71  |                 | Sea Urchin                | 3 |  |
| 72  |                 | Clydester (Sand Dollar)   | 2 |  |
| 73  |                 | Brittle Star              | 3 |  |
| 74  |                 | Feather Star              | 2 |  |
| 75  | Vertibrata      | Balanoglossus             | 4 |  |
| 76  |                 | Cephalodiscus             | 1 |  |
| 77  |                 | Petromyzone               | 2 |  |
| 78  |                 | Hardmania                 | 1 |  |
| 79  |                 | Ascidia                   | 2 |  |
| 80  |                 | Salpa                     | 1 |  |
| 81  |                 | Amphioxus                 | 1 |  |
| 82  |                 | Hagfish (Myxine)          | 1 |  |
| 83  | Class: Pisces   | Eel                       | 3 |  |
| 84  |                 | Bony Fish                 | 1 |  |
| 85  |                 | Sting Ray                 | 2 |  |
| 86  |                 | Torpedo                   | 4 |  |
| 87  |                 | Sea Horse                 | 1 |  |
| 88  |                 | Bombay Duck               | 1 |  |
| 89  |                 | Protopterus               | 2 |  |
| 90  |                 | Ophiocephalus             | 1 |  |
| 91  |                 | Acidnator                 | 1 |  |
| 92  |                 | Exocoetus                 | 2 |  |
| 93  |                 | Cat Fish                  | 1 |  |
| 94  |                 | Salmon                    | 1 |  |
| 95  |                 | Shark (Scoliodon)         | 3 |  |
| 96  |                 | Sucker Fish               | 1 |  |
| 97  |                 | Amia                      | 1 |  |
| 98  |                 | Hammer Headed Shark       | 1 |  |
| 99  |                 | Labeo                     | 1 |  |
| 100 | Class: Amphibia | Bufo                      | 4 |  |
| 101 |                 | Alytes (Mid<br>Wife Toad) | 2 |  |
| 102 |                 | Hyla                      | 1 |  |
| 103 |                 | Ichthyophis               | 1 |  |
| 104 |                 |                           | 2 |  |





|     |                      |                       |   |                |
|-----|----------------------|-----------------------|---|----------------|
| 105 |                      | Phynosoma (Horntoad)  | 2 |                |
| 106 |                      | Uraeoxyphilus         | 1 |                |
| 107 |                      | Necturus              | 1 |                |
| 108 | Class: Reptile       | Chameleon             | 2 |                |
| 109 |                      | Varanus               | 2 |                |
| 110 |                      | Snake                 | 1 |                |
| 111 |                      | Draco                 | 2 | <b>1 Model</b> |
| 112 |                      | Tortoise              | 1 |                |
| 113 |                      | Mobayia               | 1 |                |
| 114 |                      | Salamander            | 1 |                |
| 115 |                      | Sphenodon             | 1 |                |
| 116 |                      | Hydrophis (Sea Snake) | 1 | <b>Model</b>   |
| 117 |                      | Python (Ajar)         | 1 | <b>Model</b>   |
| 118 |                      | Rusell Viper          | 1 | <b>Model</b>   |
| 119 |                      | Dhaman (Rat Snake)    | 1 | <b>Model</b>   |
| 120 |                      | King Cobra            | 1 | <b>Model</b>   |
| 121 |                      | Krait                 | 1 | <b>Model</b>   |
| 122 |                      | Crocodile             | 1 | <b>Model</b>   |
| 123 | Class:Aves           | Wood Peaker           | 2 | <b>Model</b>   |
| 124 |                      | Weaver Bird           | 2 | <b>Model</b>   |
| 125 |                      | Owl                   | 2 | <b>Model</b>   |
| 126 |                      | Parrot                | 1 | <b>Model</b>   |
| 127 |                      | Archopteryx           | 1 | <b>Model</b>   |
| 128 | Class: Mammal        | Shrew                 | 2 |                |
| 129 |                      | Bat                   | 2 |                |
| 130 |                      | Squirrel              | 3 | <b>1 Model</b> |
| 131 |                      | Rat                   | 1 |                |
| 132 |                      | Platypus              | 1 | <b>Model</b>   |
| 133 |                      | Loris                 | 1 | <b>Model</b>   |
| 134 |                      | Ant Eater             | 1 | <b>Model</b>   |
| 135 |                      | Hed Hog               | 2 | <b>Model</b>   |
| 136 |                      | Pangolin              | 1 | <b>Model</b>   |
| 137 | Life History (L. H.) | Hony Bee L. H.        | 1 |                |
| 138 |                      | Silk Moth L. H.       | 1 |                |
| 139 |                      | Frog L. H.            | 1 |                |
| 140 |                      | Mosquito L. H.        | 1 |                |
| 141 | Class: Pisces        | Sale Fish             | 2 |                |
| 142 |                      | Echeneis              | 1 |                |





|     |                 |                |   |  |
|-----|-----------------|----------------|---|--|
| 143 |                 | Promfret       | 2 |  |
| 144 |                 | Tiger Shark    | 1 |  |
| 145 | Class: Amphibia | Axolotal Larva | 1 |  |
| 146 | Class: Reptile  | Calotis        | 1 |  |
| 147 |                 | Mud Skipper    | 1 |  |
| 148 | Class:Pisces    | Amia Calva     | 1 |  |
| 149 |                 | Tetradon       | 1 |  |
| 150 |                 | Lepidosteus    | 1 |  |
| 151 |                 | Polypterus     | 1 |  |
| 152 |                 | Acipencer      | 1 |  |
| 153 |                 | Pepidosiren    | 1 |  |
| 154 | Class:Amphibia  | Necturus       | 1 |  |
| 155 |                 | Ambystoma      | 1 |  |



|  |   |                   |
|--|---|-------------------|
|  <b>ATMIYA<br/>UNIVERSITY</b> | <b>NAAC – Cycle – 1</b><br><b>AISHE: U-0967</b> |                   |
|  | <b>Criterion 4</b>                              | <b>I &amp; LR</b> |
|  | <b>KI 4.3</b>                                   | <b>M 4.3.3</b>    |

### e) Botany Museum

The Botany Museum in the Botany Department serves as a comprehensive educational resource, housing an extensive collection of charts, slides, and models that showcase diverse botanical concepts. The chart collection covers essential topics such as Plant Mitosis, Anatomy of Monocot and Dicot Stems, Chloroplast Structure, and various plant families, including Fabaceae, Asteraceae, and Euphorbiaceae. The museum boasts 238 slides encompassing divisions like Algae, Fungi, Bryophytes, Pteridophytes, Gymnosperms, and Angiosperms. Highlights include algal species such as Spirogyra, Volvox, and Sargassum, illustrating reproductive and vegetative structures, and fungal slides depicting organisms like Agaricus, Mucor, and Penicillium with detailed views of spore formation and vegetative growth. Bryophyte slides capture the life cycles of Anthoceros, Marchantia, and Funaria, while Pteridophyte specimens include anatomical studies of Ferns, Equisetum, and Selaginella. Gymnosperms, such as Pinus and Cycas, are represented with slides showing cones, ovules, and vascular structures, while Angiosperm slides illustrate the anatomy and embryology of monocots and dicots, including ovule types, placentation, and flower structures. A dedicated section focuses on cell division, with detailed slides of mitosis and meiosis stages. Morphological specimens like Drosera (an insectivorous plant) and Capitulum structures add to the museum's diversity. The collection also features models of unique plant structures, such as Fibrous and Tap Roots, Racemose Inflorescences, and the Phylloclade of Euphorbia. Lichen specimens and detailed slides on economically and ecologically important plant families enhance the educational value. Overall, the Botany Museum is an invaluable resource for in-depth study and research in the field of botany.





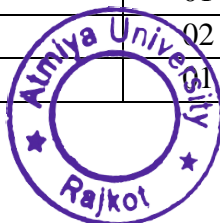
**Chart List of Botany**

| Sr. No. | Name   |
|---------|--|
| 1       | Plant Mitosis                                      |
| 2       | Anatomy of Stem: Monocot ( <i>Zea Mays</i> )       |
| 3       | Anatomy of Stem: Dicot ( <i>Helianthus Annus</i> ) |
| 4       | Vegitative Propagation                             |
| 5       | Cell Membrane and Cell Wall                        |
| 6       | Chloroplast  |
| 7       | Acanthaceae  |
| 8       | Fabaceae   |
| 9       | Apocynaceae  |
| 10      | Apiaceae   |
| 11      | Euphorbiaceae                                      |
| 12      | Asteraceae   |
| 13      | Poaceae  |
| 14      | Verbeace   |
| 15      | Caesalpiniaceae                                    |
| 16      | Cruciferae   |



**List of Botany slides**

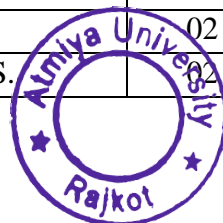
| <b>Sr. No.</b> | <b>Name Of Slide</b>            | <b>Quantity</b> | <b>Division</b> |
|----------------|---------------------------------|-----------------|-----------------|
| 1              | Anabena                         | 04              | <b>Algae</b>    |
| 2              | Batrachospermum Cystocarp       | 01              |                 |
| 3              | Batrachospermum Reproductive    | 01              |                 |
| 4              | Batrachospermum Sexual          | 01              |                 |
| 5              | Batrachospermum Spermatile      | 01              |                 |
| 6              | Batrachospermum Vegetative      | 02              |                 |
| 7              | Chara Sexual                    | 01              |                 |
| 8              | Chlamydomonas                   | 01              |                 |
| 9              | Chlamydomonas Palmella          | 01              |                 |
| 10             | Ectocarpus Plurilocular         | 01              |                 |
| 11             | Ectocarpus Unilocular           | 01              |                 |
| 12             | Nostoc                          | 03              |                 |
| 13             | Oedogonium Capcells             | 01              |                 |
| 14             | Oedogonium Macrandrous          | 01              |                 |
| 15             | Oedogonium Nandrous             | 01              |                 |
| 16             | Oedogonium Oogonial Filaments   | 01              |                 |
| 17             | Oedogonium Vegetative           | 02              |                 |
| 18             | Oscillatoria                    | 01              |                 |
| 19             | Polysiphonia Antheridium        | 02              |                 |
| 20             | Polysiphonia Cystocarp          | 02              |                 |
| 21             | Polysiphonia Tetrasporium       | 02              |                 |
| 22             | Polysiphonia Vegetative         | 02              |                 |
| 23             | Rivularia                       | 01              |                 |
| 24             | Sargassum Bladder               | 01              |                 |
| 25             | Sargassum Conceptacle           | 01              |                 |
| 26             | Sargassum Thallus               | 02              |                 |
| 27             | Spirogyra Lateral Conjugation   | 04              |                 |
| 28             | Spirogyra Scaliform Conjugation | 03              |                 |
| 29             | Spirogyra Sexual                | 01              |                 |
| 30             | Spirogyra Vegetative            | 03              |                 |
| 31             | Stigonema                       | 01              |                 |
| 32             | Ulothrix Reproduction           | 02              |                 |
| 33             | Ulothrix Sexual                 | 01              |                 |
| 34             | Ulothrix Vegetative             | 02              |                 |
| 35             | Vaucheria Sexual                |                 |                 |





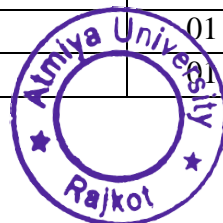


|    |                                 |    |                   |
|----|---------------------------------|----|-------------------|
| 36 | Volvox                          | 01 |                   |
| 37 | Volvox Antheridium              | 02 |                   |
| 38 | Volvox Mixed                    | 02 |                   |
| 39 | Volvox Oogonium                 | 02 |                   |
| 40 | Volvox Sexual                   | 01 |                   |
| 41 | Volvox Vegetative               | 01 |                   |
| 42 | Volvox With Daughter Colony     | 03 |                   |
| 43 | Zygnema Sclatiform Conjugation  | 01 |                   |
| 44 | Zygnema Vegetative              | 01 |                   |
| 45 | Agaricus Pileus                 | 01 | <b>Fungi</b>      |
| 46 | Agaricus Stipe-Pileus           | 02 |                   |
| 47 | Aspergillus                     | 02 |                   |
| 48 | Aspergillus Eurotium Sporangial | 02 |                   |
| 49 | Mucor Asexual                   | 01 |                   |
| 50 | Mucor Sporangiate               | 03 |                   |
| 51 | Mucor Vegetative                | 03 |                   |
| 52 | Mucor Zygospor                  | 02 |                   |
| 53 | Penicillium In Orange Ring      | 01 |                   |
| 54 | Peziza Apothecia                | 01 |                   |
| 55 | Peziza V.S.                     | 02 |                   |
| 56 | Puccinia Aecidial               | 01 |                   |
| 57 | Puccinia Aeciospores            | 01 |                   |
| 58 | Puccinia Pycnial                | 01 |                   |
| 59 | Puccinia Teleutospore           | 01 |                   |
| 60 | Puccinia Uredospores            | 02 |                   |
| 61 | Pythium                         | 03 |                   |
| 62 | Pythium Reproductive            | 01 |                   |
| 63 | Pythium Vegetative              | 01 |                   |
| 64 | Ustilago On Host Showing Spores | 01 |                   |
| 65 | Ustilago T.S.                   | 01 |                   |
| 66 | Yeast Cell                      | 03 |                   |
| 67 | Yeast Budding                   | 03 |                   |
| 68 | Lichen Thallus T. S.            | 01 | <b>Lichen</b>     |
| 69 | Lichen Apothecium               | 01 |                   |
| 70 | Anthoceros Sporophyte W.M.      | 02 | <b>Bryophytes</b> |
| 71 | Anthoceros Antheridia           | 02 |                   |
| 72 | Anthoceros Archegonia           | 02 |                   |
| 73 | Anthoceros Sporophyte C.S.      |    |                   |



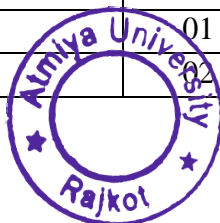


|     |                            |    |                      |
|-----|----------------------------|----|----------------------|
| 74  | Anthoceros Sporophyte T.S. | 02 |                      |
| 75  | Anthoceros Thallus         | 04 |                      |
| 76  | Funaria Antheridia         | 04 |                      |
| 77  | Funaria Archegonia         | 02 |                      |
| 78  | Funaria Capsule            | 02 |                      |
| 79  | Funaria Leaf               | 02 |                      |
| 80  | Funaria Plant And Capsule  | 02 |                      |
| 81  | Funaria Protonema          | 02 |                      |
| 82  | Marchantia Antheridia      | 03 |                      |
| 83  | Marchantia Archegonia      | 05 |                      |
| 84  | Marchantia Gemma Cup       | 02 |                      |
| 85  | Marchantia Male V.S.       | 01 |                      |
| 86  | Marchantia Sporophyte      | 02 |                      |
| 87  | Marchantia Thallus V.S.    | 02 |                      |
| 88  | Moss Capsule L.S.          | 03 |                      |
| 89  | Moss Peristome             | 01 |                      |
| 90  | Moss Plant With Capsule    | 01 |                      |
| 91  | Moss Protonema             | 02 |                      |
| 92  | Moss Stem T.S.             | 01 |                      |
| 93  | Moss Antheridia            | 02 |                      |
| 94  | Moss Archegonia            | 02 |                      |
| 95  | Moss Plant                 | 01 |                      |
| 96  | Moss Sporophyte L. S.      | 01 |                      |
| 97  | Riccia Antheridia          | 01 |                      |
| 98  | Riccia Archegonia          | 01 |                      |
| 99  | Riccia Sporocarp           | 01 |                      |
| 100 | Riccia Sporophyte          | 03 |                      |
| 101 | Riccia Thallus             | 05 |                      |
| 102 | Riccia Zygote              | 01 |                      |
| 103 | Adiantum Root T.S.         | 02 | <b>Pteridophytes</b> |
| 104 | Adiantum Prothallus        | 02 |                      |
| 105 | Adiantum Rachis            | 02 |                      |
| 106 | Adiantum Rhizome T.S.      | 02 |                      |
| 107 | Equisetum Cone             | 02 |                      |
| 108 | Equisetum Prothallus       | 01 |                      |
| 109 | Equisetum Rhizome          | 01 |                      |
| 110 | Equisetum Root             | 01 |                      |
| 111 | Equisetum Stem             |    |                      |



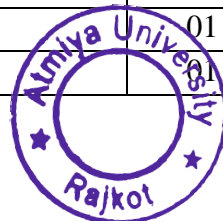


|     |                                 |    |                   |
|-----|---------------------------------|----|-------------------|
| 112 | Fern Root T.S.                  | 03 |                   |
| 113 | Fern Leaf With Sori             | 03 |                   |
| 114 | Fern Prothallus                 | 04 |                   |
| 115 | Fern Prothallus With Sporophyte | 02 |                   |
| 116 | Fern Prothellus Antheridia      | 06 |                   |
| 117 | Fern Prothellus Archegonia      | 05 |                   |
| 118 | Fern Rachis T.S.                | 03 |                   |
| 119 | Fern Rhizome                    | 02 |                   |
| 120 | Fern Sporophita                 | 01 |                   |
| 121 | Lycopodium Protostele           | 02 |                   |
| 122 | Lycopodium Root                 | 01 |                   |
| 123 | Lycopodium Stem                 | 03 |                   |
| 124 | Psilotum Synangia               | 01 |                   |
| 125 | Selaginella Leaf                | 01 |                   |
| 126 | Selaginella Rhizome             | 01 |                   |
| 127 | Selaginella Root                | 01 |                   |
| 128 | Selaginella Stem                | 02 |                   |
| 129 | Selaginella Stem T.S.           | 02 |                   |
| 130 | Selaginella Strobilus           | 02 |                   |
| 131 | Selaginella Strobilus V.S.      | 02 |                   |
| 132 | Cycas Coralloid Root            | 01 | <b>Gymnosperm</b> |
| 133 | Cycas Ovule                     | 01 |                   |
| 134 | Cycas Rachis                    | 03 |                   |
| 135 | Pinus Needle T.S.               | 05 |                   |
| 136 | Pinus Ovule V.S.                | 03 |                   |
| 137 | Pinus Female Cone               | 05 |                   |
| 138 | Pinus Male Cone                 | 03 |                   |
| 139 | Pinus Ovule                     | 02 |                   |
| 140 | Pinus Pollen Grain              | 04 |                   |
| 141 | Pinus Root T.S.                 | 05 |                   |
| 142 | Pinus Stem T.S.                 | 14 |                   |
| 143 | Drosera Leaf Captured Insect    | 01 | <b>Angiosperm</b> |
| 144 | Acto Stele                      | 01 | <b>Stele</b>      |
| 145 | Dictyo Stele                    | 02 |                   |
| 146 | Plecto Stele                    | 02 |                   |
| 147 | Poly Stele                      | 02 |                   |
| 148 | Siphon Stele                    | 01 |                   |
| 149 | Soleno Stele                    |    |                   |



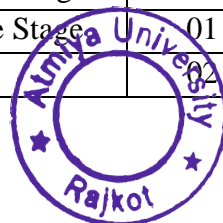


|     |                                  |    |                   |
|-----|----------------------------------|----|-------------------|
| 150 | Dicot Embryo                     | 01 | <b>Embryology</b> |
| 151 | Monocot Embryo                   | 01 |                   |
| 152 | Angiosperm Ovule Amphitropous    | 02 |                   |
| 153 | Angiosperm Ovule Anatropous T.S. | 02 |                   |
| 154 | Angiosperm Ovule Camphlotrophs   | 04 |                   |
| 155 | Angiosperm Ovule Orthotropous    | 01 |                   |
| 156 | Capsella Auadrant Celled Stage   | 01 |                   |
| 157 | Capsella Octant Celled Stage     | 01 |                   |
| 158 | Capsella One Celled Stage        | 01 |                   |
| 159 | Capsella Two Celled Stage        | 01 |                   |
| 160 | Circinotropous Ovule             | 01 |                   |
| 161 | Epigynous Flower                 | 01 |                   |
| 162 | Flower Bud C.S.                  | 01 |                   |
| 163 | Flower Bud L.S.                  | 01 |                   |
| 164 | Flower Bud T.S.                  | 01 |                   |
| 165 | Hypogynous Flower                | 01 |                   |
| 166 | Perigynous Flower                | 01 |                   |
| 167 | Placentation Axial               | 01 |                   |
| 168 | Placentation Basal               | 01 |                   |
| 169 | Placentation Free Central        | 01 |                   |
| 170 | Placentation Marginal            | 01 |                   |
| 171 | Placentation Parietal            | 01 |                   |
| 172 | Pollen Grain Germination         | 01 |                   |
| 173 | Air System In Leaf               | 01 | <b>Anatomy</b>    |
| 174 | Anogiosperm Stem Apex            | 01 |                   |
| 175 | Anther T.S.                      | 01 |                   |
| 176 | Apical Stem Meristem             | 01 |                   |
| 177 | Aristolochia Stem                | 03 |                   |
| 178 | Dicot Root T.S.                  | 01 |                   |
| 179 | Dicot Stem                       | 01 |                   |
| 180 | Dracaena Stem                    | 02 |                   |
| 181 | Elodia Stem                      | 01 |                   |
| 182 | Bignonia Stem                    | 01 |                   |
| 183 | Asparagus Stem T.S.              | 01 |                   |
| 184 | Lenticel Avicennia               | 01 |                   |
| 185 | Cystolith C.S. (Ficus Leaf C.S.) | 01 |                   |
| 186 | Helianthus Root L.S.             | 01 |                   |
| 187 | Beet Root T.S.                   |    |                   |





|     |                                   |    |                      |
|-----|-----------------------------------|----|----------------------|
| 188 | Hydrilla Leaf                     | 01 |                      |
| 189 | Hydrilla Stem                     | 01 |                      |
| 190 | Latex Cell                        | 02 |                      |
| 191 | Lenticel Avicennia                | 01 |                      |
| 192 | Maize Grain                       | 01 |                      |
| 193 | Maize Leaf T.S.                   | 01 |                      |
| 194 | Maize Stem                        | 01 |                      |
| 195 | Maize Root                        | 02 |                      |
| 196 | Monocot Leaf L.S.                 | 01 |                      |
| 197 | Monocot Leaf V.S.                 | 01 |                      |
| 198 | Nymphaea Leaf                     | 01 |                      |
| 199 | Oil Cavity                        | 01 |                      |
| 200 | Orchid Root T.S.                  | 03 |                      |
| 201 | Parenchyma                        | 01 |                      |
| 202 | Plant Cell                        | 01 |                      |
| 203 | Plant Tissue Collenchyma          | 01 |                      |
| 204 | Plant Tissue Phloem               | 01 |                      |
| 205 | Plant Tissue Sclerenchyma         | 01 |                      |
| 206 | Plant Tissue Xylum                | 02 |                      |
| 207 | Pomoea Stem                       | 01 |                      |
| 208 | Salvadora Stem T.S.               | 02 |                      |
| 209 | Sunflower Stem                    | 01 |                      |
| 210 | Sunflower Leaf C.S.               | 02 |                      |
| 211 | Albugo                            | 01 |                      |
| 212 | Anona Inflorescence               | 01 |                      |
| 213 | Interphase Stage                  | 01 | <b>Cell Division</b> |
| 214 | Meiosis 1 <sup>st</sup> All Stage | 01 |                      |
| 215 | Meiosis 2 <sup>nd</sup> All Stage | 01 |                      |
| 216 | Meiosis Anaphase I Stage          | 01 |                      |
| 217 | Meiosis Anaphase II Stage         | 02 |                      |
| 218 | Meiosis Cytology Onion Anther     | 01 |                      |
| 219 | Meiosis Metaphase I Stage         | 01 |                      |
| 220 | Meiosis Metaphase II Stage        | 01 |                      |
| 221 | Meiosis Prophase Dikinesis        | 01 |                      |
| 222 | Meiosis Prophase Leptotene        | 01 |                      |
| 223 | Meiosis Prophase Pachytene Stage  | 01 |                      |
| 224 | Meiosis Prophase Zygotene Stage   | 01 |                      |
| 225 | Meiosis Telophase I Stage         |    |                      |





|     |                            |    |                   |
|-----|----------------------------|----|-------------------|
| 226 | Meiosis Telophase II Stage | 01 |                   |
| 227 | Meiosis Tetrad Formation   | 01 |                   |
| 228 | Mitosis Anaphase           | 01 |                   |
| 229 | Mitosis Metabolic Stage    | 01 |                   |
| 230 | Mitosis Metaphase          | 01 |                   |
| 231 | Mitosis Prophase           | 01 |                   |
| 232 | Mitosis Telophase          | 01 |                   |
| 233 | Cytokinesis During Meiosis | 01 |                   |
| 234 | Capitulum V.S.             | 01 | <b>Morphology</b> |
| 235 | Bacteria Bacillus          | 06 | <b>Bacteria</b>   |
| 236 | Bacteria Coccus            | 04 |                   |
| 237 | Spirillum Form             | 01 |                   |
| 238 | Vibro Comma Bacteria       | 02 |                   |

| <b>Sr. No.</b> | <b>Name Of BLOCK</b>            | <b>Quantity</b> | <b>Division</b> |
|----------------|---------------------------------|-----------------|-----------------|
| 1              | Anthoceros Sporophyte           | 01              |                 |
| 2              | Catkin                          | 01              |                 |
| 3              | Drosera                         | 01              |                 |
| 4              | Fibrous Root                    | 01              |                 |
| 5              | Moss Life History               | 01              |                 |
| 6              | Phylloclade Euphorbia           | 01              |                 |
| 7              | Racemose                        | 01              |                 |
| 8              | Root Cap                        | 01              |                 |
| 9              | Spadix                          | 01              |                 |
| 10             | Spike                           | 01              |                 |
| 11             | Spikelet                        | 01              |                 |
| 12             | Tap Root                        | 01              |                 |
| 13             | Utricularia Insectivorous Plant | 01              |                 |



|  |   |                   |
|--|---|-------------------|
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|  | <b>Criterion 4</b>                              | <b>I &amp; LR</b> |
|  | <b>KI 4.3</b>                                   | <b>M 4.3.3</b>    |

**f) Computer Museum:**

It is crucial for preserving the history of technological advancements and providing insights into how past innovations have influenced the current and future landscape of computer systems. Instruments such as floppy disks, projectors, switches, routers, GPS trackers, DVD readers, transmission media, Sun Solaris monitors, computer systems, and camcorders have played pivotal roles in shaping the computing world. By showcasing these instruments, museums offer a hands-on experience and educate visitors about the evolution of technology, fostering a deeper appreciation of how these devices have revolutionized industries like communications, entertainment, and data processing.





**Listing of Instruments:**

| <b>Instrument Name</b> | <b>Description and Key Benefits</b>  |
|------------------------|--|
| <b>Floppy Disk</b>     | A portable storage medium once widely used for data transfer and backups. Its small size and ease of use made it a cornerstone for personal computing in the 1980s and 1990s. Portable storage, allowing for easy sharing of files.                          |
| <b>Projector</b>       | A device used to display visual output from a computer or media source onto a larger screen. Initially CRT-based, projectors evolved to use LCD or DLP technology. Enhanced presentations, educational purposes, and media consumption.                      |
| <b>Switches</b>        | Networking devices that manage the flow of data between computers on a local area network (LAN). Modern switches allow for high-speed communication across multiple devices. Efficient data routing, reduced network congestion, and improved communication. |





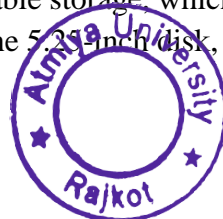


| <b>Instrument Name</b>     | <b>Description and Key Benefits</b>   |
|----------------------------|---|
| <b>Routers</b>             | Routers direct data between different networks, enabling devices on a local network to communicate with the internet. Early routers were simple, but modern routers support complex, high-speed connections. Connecting local networks to the internet, supporting network management.                |
| <b>GPS Trackers</b>        | Devices that use satellite signals to determine and track the location of an object or individual. Real-time location tracking, crucial for logistics, navigation, and personal security.   |
| <b>DVD Readers</b>         | Optical drives used to read data from DVDs. They were the standard for media consumption before streaming services became widely popular. Storage for large video and software files, with high-quality media playback.   |
| <b>Transmission Media</b>  | The physical media that carries data signals, such as coaxial cables, fiber optics, and wireless technologies. High-speed, reliable communication between network devices over varying distances.   |
| <b>Sun Solaris Monitor</b> | A high-resolution monitor specifically designed for use with the Sun Solaris operating system, which was popular for enterprise computing. Excellent display quality, optimized for computing and programming tasks.  |
| <b>Computer System</b>     | Refers to the central processing unit (CPU), memory, and peripherals required for computational tasks. Over time, computers evolved from basic machines to powerful systems capable of handling complex operations. Versatility in computing tasks, from personal use to enterprise-level operations. |
| <b>Camcorder</b>           | A portable video recording device, initially combining the functions of a camera and a recorder. Early camcorders used tape, later evolving to digital formats. Allowed for personal video recording, revolutionizing media production and content sharing.   |

**Descriptions and Key Benefits:**

**1. Floppy Disk**

The floppy disk was a revolutionary data storage and transfer medium used from the 1970s to the late 1990s. It offered portable storage, which made it easy to share and backup files. Early versions included the 5.25-inch disk, which later evolved into the





more common 3.5-inch disk.

**Key Benefits:**

- Portable storage solution.
- Ease of use for transferring files between systems.
- Major step in personal computing, making software distribution and data backup more accessible.

**2. Projector**

Projectors are devices that display images or video onto a larger screen. Initially, CRT projectors were bulky and less efficient, but they evolved into LCD and DLP projectors, which are lighter, more energy-efficient, and provide higher-quality visuals.

**Key Benefits:**

- Facilitated educational and business presentations.
- Enhanced entertainment experiences in homes and theaters.
- Revolutionized communication in academic, business, and creative sectors.

**3. Switches**

Networking switches are devices that allow multiple devices within a local area network (LAN) to communicate with each other efficiently. They operate at the data link layer of the OSI model, learning and forwarding data based on MAC addresses.

**Key Benefits:**

- Enhanced network efficiency by reducing collisions.
- Support for high-speed data transfers and connections.
- A crucial component for modern networking and communications infrastructures.

**4. Routers**

Routers are network devices that connect different networks, typically linking local area networks (LANs) to the internet. Early routers were simple devices, but now they handle complex tasks like traffic routing, security filtering, and wireless networking.

**Key Benefits:**

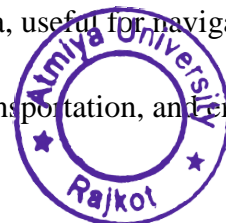
- Enables internet connectivity and communication between networks.
- Ensures efficient data routing for optimal internet speeds.
- Crucial for managing network security and traffic control.

**5. GPS Trackers**

GPS trackers utilize satellite technology to pinpoint and track the location of a device or individual. GPS technology has improved significantly over the years, now providing real-time, highly accurate tracking.

**Key Benefits:**

- Provides real-time location data, useful for navigation, logistics, and personal security.
- Used widely in automotive, transportation, and emergency services.





- Key enabler for location-based services (LBS).

#### 6. **DVD Readers**

DVD readers are optical drives used to read data stored on DVD media. Before digital downloads and streaming, DVDs were the preferred method for distributing movies, software, and games.

**Key Benefits:**

- Enabled high-quality video and software distribution.
- Provided reliable, high-capacity storage for multimedia content.
- Played a major role in the home entertainment industry before digital streaming.

#### 7. **Transmission Media**

Transmission media refers to the physical or wireless medium used to transmit data between devices. Examples include fiber-optic cables, coaxial cables, and wireless technologies like Wi-Fi and Bluetooth.

**Key Benefits:**

- Ensures reliable and high-speed data transfer.
- Supported the growth of global communications networks.
- Provides the infrastructure for everything from home internet to enterprise networks.

#### 8. **Sun Solaris Monitor**

Sun Solaris Monitors were specifically built to work with the Solaris operating system, offering excellent resolution and high compatibility for enterprise-level applications and network management.

**Key Benefits:**

- Optimized for advanced computing tasks in enterprise environments.
- Provided high-quality visuals and excellent compatibility with Solaris-based systems.
- A major tool in large-scale, mission-critical computing setups.

#### 9. **Computer System**

The computer system encompasses the CPU, memory, storage devices, and peripherals. Over the years, computing systems evolved from simple machines to powerful servers and desktops capable of handling advanced calculations, graphics, and data analysis.

**Key Benefits:**

- The core of all modern computing tasks, from basic word processing to complex simulations.
- Significant improvements in processing power, storage, and multitasking over time.
- Versatile applications across industries, including business, research, education, and entertainment.



|  |   |                   |
|--|---|-------------------|
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|  | <b>Criterion 4</b>                              | <b>I &amp; LR</b> |
|  | <b>KI 4.3</b>                                   | <b>M 4.3.3</b>    |

## 10. Camcorder

Camcorders combine the functions of a video camera and recorder into one portable device. Early models used analog tape formats, while digital versions offered higher-quality footage and more storage capacity.

### Key Benefits:

- Revolutionized personal video recording and media creation.
- Allowed for affordable video production, changing entertainment and media sharing.
- Key for consumer content creation and documentation in both personal and professional settings.



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