KERALA DIPLOMA CURRICULUM REVISION 2026

Course 3121 | 3 Credits: 3 | Program Core | Source-grounded

Pulp Technology

 To provide knowledge to the students regarding the basic concepts of pulping with

OFFICIAL SOURCE DECLARATION

How this lesson was prepared

The supplied official SITTTR syllabus PDF for Course 3121 is the authoritative source for course information, objectives, course outcomes, CO–PO mapping, modules, topics, activities, assessment structure and references. Explanations, study prompts and Malayalam support are educational elaboration and are not presented as additional official syllabus text.

Source file: 3121.pdf from the uploaded official SITTTR syllabus archive. **Course code and title:** preserved from the source.

COURSE DASHBOARD

Official course information

Course information

Item	Official information
Programme	Diploma in Wood and Paper Technology
Course code	3121
Course title	Pulp Technology
Semester	3 Credits: 3
Course category	Program Core
Periods per week	3 (L:2, T:1, P:0) Periods per semester: 45
Periods per semester	45
Credits	3
Prerequisite	See the official syllabus PDF
Assessment	Use the official assessment section reproduced below

Modules

4 official module sections detected.

Topic entries

14 source-aligned topic entries retained.

Study mode

Theory and application emphasis.

STUDY METHOD

How to use this lesson

First pass

Read the official source declaration, dashboard and module transcript. Mark unfamiliar terms without changing the official terminology.

Second pass

Use each topic card to build a definition, principle, steps or components, application and exam answer. Attempt the Q&A before opening the answers.

Practical evidence

Where the course is laboratory or workshop based, maintain an observation notebook with procedure, instruments, readings, safety points and conclusion.

Revision pass

Return to the source excerpt, coverage table, activities and model paper. The generated paper is practice material, not an official examination paper.

LEARNING OUTCOMES

Objectives, outcomes and mapping

Course objectives

- To provide knowledge to the students regarding the basic concepts of pulping with
- details of physical and chemical characteristics of fibrous raw materials..
- To familiarize the students with various types of pulping methodologies used for
- pulp manufacture.

Course outcomes

CO	Official outcome	Study level
CO1	11 Understanding Pulping	See official syllabus
CO2	Summarise the types of pulping processes 10 Understanding Describe the Washing , Screening and Cleaning of	See official syllabus
CO3	11 Understanding	See official syllabus
CO4	Comprehend the Bleaching of Pulp 11 Understanding	See official syllabus

CO–PO mapping evidence

Row	Extracted official mapping
CO1	CO1 3
CO2	CO2 3
CO3	CO3 3 3

Row	Extracted official mapping
CO4	CO4 3

COVERAGE AUDIT

Complete syllabus coverage

Every detected official module is represented below. Each module contains topic cards and an expandable official syllabus transcript to preserve source terminology.

Module coverage

Module	Official heading	Topic entries	Hours
Module 1	Comprehend the preparation of raw materials for Pulping	3	As specified
Module 2	Summarise the types of pulping processes	3	As specified
Module 3	Describe the Washing, Screening and Cleaning of Pulp	4	As specified
Module 4	residue	4	As specified

MODULE 1

Comprehend the preparation of raw materials for Pulping

This module is presented from the official syllabus scope for Pulp Technology. Use the topic cards for learning and the source transcript for exact coverage.

As specified
official hours

CO-linked
see outcomes

Learning goals

- Explain the official Module 1 scope and its relationship to the course outcomes.
- Recognise the terminology, sequence, components and evidence expected in examination answers.
- Connect at least one official topic to a practical, industrial, laboratory or design context.

Key facts

- Official module title: Comprehend the preparation of raw materials for Pulping
- Official duration: As specified
- Official topic entries captured: 3
- The full source excerpt is preserved below for coverage checking.

▼ Describe the preparation of raw materials 3 Understanding Explain the fundamentals in characterization and

Describe the preparation of raw materials 3 Understanding Explain the fundamentals in characterization and is an official topic in Module 1 of Pulp Technology. Study the terminology first, then connect the stated purpose, sequence, components or application to the wider course outcome.

Concept and explanation

To learn this topic effectively, identify what the system, process, material, method or concept is; state its governing idea; describe the important parts or stages; and explain what changes when operating conditions change. The official source wording is retained in the module transcript so that examination answers remain aligned with the syllabus.

Study points

- Define or identify Describe the preparation of raw materials 3 Understanding Explain the fundamentals in characterization and using standard technical terminology.
- Arrange the important components, steps or characteristics in a logical sequence.
- Relate the topic to one laboratory, industrial, professional or design situation where appropriate.
- Use a labelled sketch, comparison table, formula or procedure when the question requires it.

Engineering or professional relevance

In Polytechnic practice, describe the preparation of raw materials 3 understanding explain the fundamentals in characterization and should be discussed with attention to safe operation, correct terminology, observable evidence and the relationship between input, process and result.

Topic study guide

Aspect	What to prepare

Aspect	What to prepare
Definition/identity	What Describe the preparation of raw materials 3 Understanding Explain the fundamentals in characterization and means in the official course context
Study lens	Principle → components or stages → result → application
Exam evidence	Definition, labelled explanation, comparison, procedure or example as appropriate

Exam tip: Begin with the exact term, then give an organised explanation with a diagram, table, procedure or example whenever the topic naturally supports it.

Common mistakes: Writing a memorised phrase without explaining the principle; omitting units, labels, conditions or sequence; or mixing this topic with a related but different term.

Malayalam support: Module 1-□□ Describe the preparation of raw materials 3 Understanding Explain the fundamentals in characterization and □□□□□□□□□□□□ □□□□□ definition/meaning □□□□□□□□□□□□□. □□□□□□ □□□□□□ □□□□□□□, steps, application □□□□□□ □□□□□□□□□ □□□□□□. Technical terms English-□ □□□□□ □□□□□□□□□□□.

▼ 4 Understanding classification of solids

4 Understanding classification of solids is an official topic in Module 1 of Pulp Technology. Study the terminology first, then connect the stated purpose, sequence, components or application to the wider course outcome.

Concept and explanation

To learn this topic effectively, identify what the system, process, material, method or concept is; state its governing idea; describe the important parts or stages; and explain what changes when operating conditions change. The official source wording is retained in the module transcript so that examination answers remain aligned with the syllabus.

Study points

- Define or identify 4 Understanding classification of solids using standard technical terminology.
- Arrange the important components, steps or characteristics in a logical sequence.
- Relate the topic to one laboratory, industrial, professional or design situation where appropriate.
- Use a labelled sketch, comparison table, formula or procedure when the question requires it.

Engineering or professional relevance

In Polytechnic practice, 4 understanding classification of solids should be discussed with attention to safe operation, correct terminology, observable evidence and the relationship between input, process and result.

Topic study guide

Aspect	What to prepare
Definition/identity	What 4 Understanding classification of solids means in the official course context

Aspect	What to prepare
Study lens	Principle → components or stages → result → application
Exam evidence	Definition, labelled explanation, comparison, procedure or example as appropriate

Exam tip: Begin with the exact term, then give an organised explanation with a diagram, table, procedure or example whenever the topic naturally supports it.

Common mistakes: Writing a memorised phrase without explaining the principle; omitting units, labels, conditions or sequence; or mixing this topic with a related but different term.

Malayalam support: Module 1-□□ 4 Understanding classification of solids □□□□□□□□□□□□ □□□□□ definition/meaning □□□□□□□□□□□□□. □□□□□□ □□□□□□ □□□□□□□, steps, application □□□□□□ □□□□□□□□□ □□□□□□. Technical terms English-□ □□□□□ □□□□□□□□□□□.

▼ Apply the fundamentals of conveying and storage 4 Understanding Raw materials - sources - classification - selection - transportation - debarkers - chipping - drum chipper - disc chipper - calculation of chip size - screening of chips - screens - shaking screens - vibrating screens - grizzles - bucket elevators - sieve analysis - re chipper - conveying of chips - belt conveyor - chain conveyors, roller conveyor, pneumatic conveyors scrap conveyor -screw conveyor - advantageous & disadvantageous - Chip storage - chip silo

Apply the fundamentals of conveying and storage 4 Understanding Raw materials - sources - classification - selection - transportation - debarkers - chipping - drum chipper - disc chipper - calculation of chip size - screening of chips - screens - shaking screens - vibrating screens - grizzles - bucket elevators - sieve analysis - re chipper - conveying of chips - belt conveyor - chain conveyors, roller conveyor, pneumatic conveyors scrap conveyor - screw conveyor - advantageous & disadvantageous - Chip storage - chip silo is an official topic in Module 1 of Pulp Technology. Study the terminology first, then connect the stated purpose, sequence, components or application to the wider course outcome.

Concept and explanation

To learn this topic effectively, identify what the system, process, material, method or concept is; state its governing idea; describe the important parts or stages; and explain what changes when operating conditions change. The official source wording is retained in the module transcript so that examination answers remain aligned with the syllabus.

Study points

- Define or identify Apply the fundamentals of conveying and storage 4 Understanding Raw materials - sources - classification - selection - transportation - debarkers - chipping - drum chipper - disc chipper - calculation of chip size - screening of chips - screens - shaking screens - vibrating screens - grizzles - bucket elevators - sieve analysis - re chipper - conveying of chips - belt conveyor - chain conveyors, roller conveyor,

pneumatic conveyors scrap conveyor -screw conveyor - advantageous & disadvantageous - Chip storage - chip silo using standard technical terminology.

- Arrange the important components, steps or characteristics in a logical sequence.
- Relate the topic to one laboratory, industrial, professional or design situation where appropriate.
- Use a labelled sketch, comparison table, formula or procedure when the question requires it.

Engineering or professional relevance

In Polytechnic practice, apply the fundamentals of conveying and storage 4 understanding raw materials - sources - classification - selection - transportation - debarkers - chipping - drum chipper - disc chipper - calculation of chip size - screening of chips - screens - shaking screens - vibrating screens - grizzles - bucket elevators - sieve analysis - re chipper - conveying of chips - belt conveyor - chain conveyors, roller conveyor, pneumatic conveyors scrap conveyor -screw conveyor - advantageous & disadvantageous - chip storage - chip silo should be discussed with attention to safe operation, correct terminology, observable evidence and the relationship between input, process and result.

Topic study guide

Aspect	What to prepare
Definition/identity	What Apply the fundamentals of conveying and storage 4 Understanding Raw materials - sources - classification - selection - transportation - debarkers - chipping - drum chipper - disc chipper - calculation of chip size - screening of chips - screens - shaking screens - vibrating screens - grizzles - bucket elevators - sieve analysis - re chipper - conveying of chips - belt conveyor - chain conveyors, roller conveyor, pneumatic conveyors scrap conveyor -screw conveyor - advantageous & disadvantageous - Chip storage - chip silo means in the official course context
Study lens	Principle → components or stages → result → application
Exam evidence	Definition, labelled explanation, comparison, procedure or example as appropriate

Exam tip: Begin with the exact term, then give an organised explanation with a diagram, table, procedure or example whenever the topic naturally supports it.

Common mistakes: Writing a memorised phrase without explaining the principle; omitting units, labels, conditions or sequence; or mixing this topic with a related but different term.

Malayalam support: Module 1-□□ Apply the fundamentals of conveying and storage 4 Understanding Raw materials - sources - classification - selection - transportation - debarkers - chipping - drum chipper - disc chipper - calculation of chip size - screening of chips - screens - shaking screens - vibrating screens - grizzles - bucket elevators - sieve analysis - re chipper - conveying of chips - belt conveyor - chain conveyors, roller conveyor, pneumatic conveyors scrap conveyor -screw conveyor - advantageous & disadvantageous - Chip storage - chip silo □□□□□□□□□□□□□ □□□□□ definition/meaning □□□□□□□□□□□□□. □□□□□□ □□□□□□ □□□□□□□, steps, application □□□□□□ □□□□□□□□□ □□□□□□. Technical terms English-□ □□□□□ □□□□□□□□□□□.

▶ **Official syllabus detail and terminology (expand in digital version)**

Module study routine: Read the source wording, make a one-page concept map, practise one short answer and one structured answer, then review the Malayalam support notes.

MODULE 2

Summarise the types of pulping processes

This module is presented from the official syllabus scope for Pulp Technology. Use the topic cards for learning and the source transcript for exact coverage.

As specified
official hours

CO-linked
see outcomes

Learning goals

- Explain the official Module 2 scope and its relationship to the course outcomes.
- Recognise the terminology, sequence, components and evidence expected in examination answers.
- Connect at least one official topic to a practical, industrial, laboratory or design context.

Key facts

- Official module title: Summarise the types of pulping processes
- Official duration: As specified
- Official topic entries captured: 3
- The full source excerpt is preserved below for coverage checking.

▼ Explain the classification of pulping process 3 Understanding Acquire knowledge of principles of Mechanical

Explain the classification of pulping process 3 Understanding Acquire knowledge of principles of Mechanical is an official topic in Module 2 of Pulp Technology. Study the terminology first, then connect the stated purpose, sequence, components or application to the wider course outcome.

Concept and explanation

To learn this topic effectively, identify what the system, process, material, method or concept is; state its governing idea; describe the important parts or stages; and explain what changes when operating conditions change. The official source wording is retained in the module transcript so that examination answers remain aligned with the syllabus.

Study points

- Define or identify Explain the classification of pulping process 3 Understanding Acquire knowledge of principles of Mechanical using standard technical terminology.
- Arrange the important components, steps or characteristics in a logical sequence.
- Relate the topic to one laboratory, industrial, professional or design situation where appropriate.
- Use a labelled sketch, comparison table, formula or procedure when the question requires it.

Engineering or professional relevance

In Polytechnic practice, explain the classification of pulping process 3 understanding acquire knowledge of principles of mechanical should be discussed with attention to safe operation, correct terminology, observable evidence and the relationship between input, process and result.

Topic study guide

Aspect	What to prepare
Definition/identity	What Explain the classification of pulping process 3 Understanding Acquire knowledge of principles of Mechanical means in the official course context
Study lens	Principle → components or stages → result → application
Exam evidence	Definition, labelled explanation, comparison, procedure or example as appropriate

Exam tip: Begin with the exact term, then give an organised explanation with a diagram, table, procedure or example whenever the topic naturally supports it.

Common mistakes: Writing a memorised phrase without explaining the principle; omitting units, labels, conditions or sequence; or mixing this topic with a related but different term.

Malayalam support: Module 2-□□ Explain the classification of pulping process 3 Understanding Acquire knowledge of principles of Mechanical □□□□□□□□□□□□ □□□□□ definition/meaning □□□□□□□□□□□□□. □□□□□□ □□□□□□ □□□□□□□, steps, application □□□□□□ □□□□□□□□□ □□□□□□. Technical terms English-□ □□□□□ □□□□□□□□□□□.

▼ 4 Understanding and semi-chemical pulping

4 Understanding and semi-chemical pulping is an official topic in Module 2 of Pulp Technology. Study the terminology first, then connect the stated purpose, sequence, components or application to the wider course outcome.

Concept and explanation

To learn this topic effectively, identify what the system, process, material, method or concept is; state its governing idea; describe the important parts or stages; and explain what changes when operating conditions change. The official source wording is retained in the module transcript so that examination answers remain aligned with the syllabus.

Study points

- Define or identify 4 Understanding and semi-chemical pulping using standard technical terminology.
- Arrange the important components, steps or characteristics in a logical sequence.
- Relate the topic to one laboratory, industrial, professional or design situation where appropriate.
- Use a labelled sketch, comparison table, formula or procedure when the question requires it.

Engineering or professional relevance

In Polytechnic practice, 4 understanding and semi-chemical pulping should be discussed with attention to safe operation, correct terminology, observable evidence and the relationship between input, process and result.

Topic study guide

Aspect	What to prepare
Definition/identity	What 4 Understanding and semi-chemical pulping means in the official course context

Aspect	What to prepare
Study lens	Principle → components or stages → result → application
Exam evidence	Definition, labelled explanation, comparison, procedure or example as appropriate

Exam tip: Begin with the exact term, then give an organised explanation with a diagram, table, procedure or example whenever the topic naturally supports it.

Common mistakes: Writing a memorised phrase without explaining the principle; omitting units, labels, conditions or sequence; or mixing this topic with a related but different term.

Malayalam support: Module 2-□□ 4 Understanding and semi-chemical pulping □□□□□□□□□□□□ □□□□□ definition/meaning □□□□□□□□□□□□□. □□□□□□ □□□□□□ □□□□□□□, steps, application □□□□□□ □□□□□□□□□ □□□□□□. Technical terms English-□ □□□□□ □□□□□□□□□□□.

▼ Compare different pulping processes 3 Understanding Classification of pulping process - Chemical pulping - Soda pulping - sulphite process - sulphate pulping - bisulphite process - Principles of chemical pulping - soda process - sulphate process - sulphate pulping - bisulphate process - Bath ratio - Active alkali - effective alkali - sulphidity - consistency - TTAkappa number - permanganate number - cooking process - Digester - Classification - batch process - Direct & indirect heating - Continuous cooking – Kamyr - Pandya digester - rotary Digester Mechanical pulping and semi-chemical pulping-Principles ofmechanical pulping - comparison of pulping processes. Types of mechanical pulping- Ground wood pulping - Grinders - types of grinders; Refiners - variables in refining. Thermomechanical pulping, Chemi thermomechanical pulping. Principles of semichemical pulping. Different semi- chemical pulping processes. Chemi-mech pulping. Super batch cooking. RDH cooking - Oxygen delignification.

Compare different pulping processes 3 Understanding Classification of pulping process - Chemical pulping - Soda pulping - sulphite process - sulphate pulping - bisulphite process - Principles of chemical pulping - soda process - sulphate process - sulphate pulping - bisulphate process - Bath ratio - Active alkali - effective alkali - sulphidity - consistency - TTAkappa number - permanganate number - cooking process - Digester - Classification - batch process - Direct & indirect heating - Continuous cooking – Kamyr - Pandya digester - rotary Digester Mechanical pulping and semi-chemical pulping-Principles ofmechanical pulping - comparison of pulping processes. Types of mechanical pulping- Ground wood pulping - Grinders - types of grinders; Refiners - variables in refining. Thermomechanical pulping, Chemi thermomechanical pulping. Principles of semichemical pulping. Different semi- chemical pulping processes. Chemi-mech pulping. Super batch cooking. RDH cooking - Oxygen delignification. is an official topic in Module 2 of Pulp Technology. Study the terminology first, then connect the stated purpose, sequence, components or application to the wider course outcome.

Concept and explanation

To learn this topic effectively, identify what the system, process, material, method or concept is; state its governing idea; describe the important parts or stages; and explain what changes when operating conditions change. The official source wording is retained in the module transcript so that examination answers remain aligned with the syllabus.

Study points

- Define or identify Compare different pulping processes 3 Understanding Classification of pulping process - Chemical pulping - Soda pulping - sulphite process - sulphate pulping - bisulphite process - Principles of chemical pulping - soda process - sulphate process - sulphate pulping - bisulphate process - Bath ratio - Active alkali - effective alkali - sulphidity - consistency - TTAkappa number - permanganate number - cooking process - Digester - Classification - batch process - Direct & indirect heating - Continuous cooking – Kamyr - Pandya digester - rotary Digester Mechanical pulping and semi-chemical pulping-Principles ofmechanical pulping - comparison of pulping processes. Types of mechanical pulping- Ground wood pulping - Grinders - types of grinders; Refiners - variables in refining. Thermomechanical pulping, Chemi thermomechanical pulping. Principles of semichemical pulping. Different semi- chemical pulping processes. Chemi-mech pulping. Super batch cooking. RDH cooking - Oxygen delignification. using standard technical terminology.
- Arrange the important components, steps or characteristics in a logical sequence.
- Relate the topic to one laboratory, industrial, professional or design situation where appropriate.
- Use a labelled sketch, comparison table, formula or procedure when the question requires it.

Engineering or professional relevance

In Polytechnic practice, compare different pulping processes 3 understanding classification of pulping process - chemical pulping - soda pulping - sulphite process - sulphate pulping - bisulphite process - principles of chemical pulping - soda process - sulphate process - sulphate pulping - bisulphate process - bath ratio - active alkali - effective alkali - sulphidity - consistency - ttakappa number -

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Topic study guide

Aspect	What to prepare
Definition/identity	What Compare different pulping processes 3 Understanding Classification of pulping process - Chemical pulping - Soda pulping - sulphite process - sulphate pulping - bisulphite process - Principles of chemical pulping - soda process - sulphate process - sulphate pulping - bisulphate process - Bath ratio - Active alkali - effective alkali - sulphidity - consistency - TTAkappa number - permanganate number - cooking process - Digester - Classification - batch process - Direct & indirect heating - Continuous cooking – Kamyr - Pandya digester - rotary Digester Mechanical pulping and semi-chemical pulping-Principles ofmechanical pulping - comparison of pulping processes. Types of mechanical pulping- Ground wood pulping - Grinders - types of grinders; Refiners - variables in refining. Thermomechanical pulping, Chemi thermomechanical pulping. Principles of semichemical pulping. Different semi- chemical pulping processes. Chemi-mech pulping. Super batch cooking. RDH cooking - Oxygen delignification. means in the official course context
Study lens	Principle → components or stages → result → application
Exam evidence	Definition, labelled explanation, comparison, procedure or example as appropriate

Exam tip: Begin with the exact term, then give an organised explanation with a diagram, table, procedure or example whenever the topic naturally supports it.

Common mistakes: Writing a memorised phrase without explaining the principle; omitting units, labels, conditions or sequence; or mixing this topic with a related but different term.

Malayalam support: Module 2-□□ Compare different pulping processes 3 Understanding Classification of pulping process - Chemical pulping - Soda pulping - sulphite process - sulphate pulping - bisulphite process - Principles of chemical pulping - soda process - sulphate process - sulphate pulping - bisulphate process - Bath ratio - Active alkali - effective alkali - sulphidity - consistency - TTAkappa number - permanganate number - cooking process - Digester - Classification - batch process - Direct & indirect heating - Continuous cooking – Kamyr - Pandya digester - rotary Digester Mechanical pulping and semi-chemical pulping-Principles ofmechanical pulping - comparison of pulping processes. Types of mechanical pulping- Ground wood pulping - Grinders - types of grinders; Refiners - variables in refining. Thermomechanical pulping, Chemi thermomechanical pulping. Principles of semichemical pulping. Different semi- chemical pulping processes. Chemi-mech pulping. Super batch cooking. RDH cooking - Oxygen delignification. □□□□□□□□□□□□ □□□□□ definition/meaning □□□□□□□□□□□□□. □□□□□□ □□□□□□ □□□□□□□, steps, application □□□□□□ □□□□□□□□□ □□□□□□. Technical terms English-□ □□□□□ □□□□□□□□□□□.

▶ **Official syllabus detail and terminology (expand in digital version)**

Module study routine: Read the source wording, make a one-page concept map, practise one short answer and one structured answer, then review the Malayalam support notes.

MODULE 3

Describe the Washing, Screening and Cleaning of Pulp

This module is presented from the official syllabus scope for Pulp Technology. Use the topic cards for learning and the source transcript for exact coverage.

As specified
official hours

CO-linked
see outcomes

Learning goals

- Explain the official Module 3 scope and its relationship to the course outcomes.
- Recognise the terminology, sequence, components and evidence expected in examination answers.
- Connect at least one official topic to a practical, industrial, laboratory or design context.

Key facts

- Official module title: Describe the Washing, Screening and Cleaning of Pulp
- Official duration: As specified
- Official topic entries captured: 4
- The full source excerpt is preserved below for coverage checking.

▼ List the classification of secondary fibers

List the classification of secondary fibers is an official topic in Module 3 of Pulp Technology. Study the terminology first, then connect the stated purpose, sequence, components or application to the wider course outcome.

Concept and explanation

To learn this topic effectively, identify what the system, process, material, method or concept is; state its governing idea; describe the important parts or stages; and explain what changes when operating conditions change. The official source wording is retained in the module transcript so that examination answers remain aligned with the syllabus.

Study points

- Define or identify List the classification of secondary fibers using standard technical terminology.
- Arrange the important components, steps or characteristics in a logical sequence.
- Relate the topic to one laboratory, industrial, professional or design situation where appropriate.
- Use a labelled sketch, comparison table, formula or procedure when the question requires it.

Engineering or professional relevance

In Polytechnic practice, list the classification of secondary fibers should be discussed with attention to safe operation, correct terminology, observable evidence and the relationship between input, process and result.

Topic study guide

Aspect	What to prepare
Definition/identity	What List the classification of secondary fibers means in the official course context

Aspect	What to prepare
Study lens	Principle → components or stages → result → application
Exam evidence	Definition, labelled explanation, comparison, procedure or example as appropriate

Exam tip: Begin with the exact term, then give an organised explanation with a diagram, table, procedure or example whenever the topic naturally supports it.

Common mistakes: Writing a memorised phrase without explaining the principle; omitting units, labels, conditions or sequence; or mixing this topic with a related but different term.

Malayalam support: Module 3-□□ List the classification of secondary fibers □□□□□□□□□□□□ □□□□□ definition/meaning □□□□□□□□□□□□□. □□□□□□ □□□□□□ □□□□□□□, steps, application □□□□□□ □□□□□□□□□ □□□□□□. Technical terms English-□ □□□□□ □□□□□□□□□□□.

▼ Explain Deinking and Depithing methods

Explain Deinking and Depithing methods is an official topic in Module 3 of Pulp Technology. Study the terminology first, then connect the stated purpose, sequence, components or application to the wider course outcome.

Concept and explanation

To learn this topic effectively, identify what the system, process, material, method or concept is; state its governing idea; describe the important parts or stages; and explain what changes when operating conditions change. The official source wording is retained in the module transcript so that examination answers remain aligned with the syllabus.

Study points

- Define or identify Explain Deinking and Depithing methods using standard technical terminology.
- Arrange the important components, steps or characteristics in a logical sequence.
- Relate the topic to one laboratory, industrial, professional or design situation where appropriate.
- Use a labelled sketch, comparison table, formula or procedure when the question requires it.

Engineering or professional relevance

In Polytechnic practice, explain deinking and depithing methods should be discussed with attention to safe operation, correct terminology, observable evidence and the relationship between input, process and result.

Topic study guide

Aspect	What to prepare
Definition/identity	What Explain Deinking and Depithing methods means in the official course context

Aspect	What to prepare
Study lens	Principle → components or stages → result → application
Exam evidence	Definition, labelled explanation, comparison, procedure or example as appropriate

Exam tip: Begin with the exact term, then give an organised explanation with a diagram, table, procedure or example whenever the topic naturally supports it.

Common mistakes: Writing a memorised phrase without explaining the principle; omitting units, labels, conditions or sequence; or mixing this topic with a related but different term.

Malayalam support: Module 3-□□ Explain Deinking and Depithing methods □□□□□□□□□□□□ □□□□□ definition/meaning □□□□□□□□□□□□□. □□□□□□ □□□□□□ □□□□□□□, steps, application □□□□□□ □□□□□□□□□ □□□□□□. Technical terms English-□ □□□□□ □□□□□□□□□□□.

▼ Comprehend washing of pulp

Comprehend washing of pulp is an official topic in Module 3 of Pulp Technology. Study the terminology first, then connect the stated purpose, sequence, components or application to the wider course outcome.

Concept and explanation

To learn this topic effectively, identify what the system, process, material, method or concept is; state its governing idea; describe the important parts or stages; and explain what changes when operating conditions change. The official source wording is retained in the module transcript so that examination answers remain aligned with the syllabus.

Study points

- Define or identify Comprehend washing of pulp using standard technical terminology.
- Arrange the important components, steps or characteristics in a logical sequence.
- Relate the topic to one laboratory, industrial, professional or design situation where appropriate.
- Use a labelled sketch, comparison table, formula or procedure when the question requires it.

Engineering or professional relevance

In Polytechnic practice, comprehend washing of pulp should be discussed with attention to safe operation, correct terminology, observable evidence and the relationship between input, process and result.

Topic study guide

Aspect	What to prepare
Definition/identity	What Comprehend washing of pulp means in the official course context
Study lens	Principle → components or stages → result → application

Aspect	What to prepare
Exam evidence	Definition, labelled explanation, comparison, procedure or example as appropriate

Exam tip: Begin with the exact term, then give an organised explanation with a diagram, table, procedure or example whenever the topic naturally supports it.

Common mistakes: Writing a memorised phrase without explaining the principle; omitting units, labels, conditions or sequence; or mixing this topic with a related but different term.

Malayalam support: Module 3-□□ Comprehend washing of pulp □□□□□□□□□□□□ □□□□□ definition/meaning □□□□□□□□□□□□□. □□□□□□ □□□□□□ □□□□□□□, steps, application □□□□□□ □□□□□□□□□ □□□□□□. Technical terms English-□ □□□□□ □□□□□□□□□□□.

▼ Describe screening and cleaning of pulp 3 Understanding Definition - classification of secondary fibers - Production of secondary fibers. Importance of recycling. Deinked pulp - advantages - economics of deinking. Classification of ink - Deinking process. Variables in deinking operation. Flotation cell. Dipergent of deinked stock - properties and uses of deinked paper. Effluent treatment and waste disposal in deinking plant. Depithing - classification of depithing methods. Pulping of bagasse - properties and uses of bagasse pulp Washing of pulp - objectives and principles. Rotary drum vacuum washer, pressure washer. High consistency washing - latest development in washing. Presses used in washing Screw press - disc press - belt press. Screening and cleaning of pulp. Need of screening and cleaning. Types of screens - rotary screen - pressure screen - centrifugal screen - high consistency screen. Centry cleaners - vertical and horizontal cleaners - inclined cleaner - high consistency cleaner Comprehend the Bleaching of Pulp and importance of agricultural

Describe screening and cleaning of pulp 3 Understanding Definition - classification of secondary fibers - Production of secondary fibers. Importance of recycling. Deinked pulp - advantages - economics of deinking. Classification of ink - Deinking process. Variables in deinking operation. Flotation cell. Dipergent of deinked stock - properties and uses of deinked paper. Effluent treatment and waste disposal in deinking plant. Depithing - classification of depithing methods. Pulping of bagasse - properties and uses of bagasse pulp Washing of pulp - objectives and principles. Rotary drum vacuum washer, pressure washer. High consistency washing - latest development in washing. Presses used in washing Screw press - disc press - belt press. Screening and cleaning of pulp. Need of screening and cleaning. Types of screens - rotary screen - pressure screen - centrifugal screen - high consistency screen. Centry cleaners - vertical and horizontal cleaners - inclined cleaner - high consistency cleaner Comprehend the Bleaching of Pulp and importance of agricultural is an official topic in Module 3 of Pulp Technology. Study the terminology first,

then connect the stated purpose, sequence, components or application to the wider course outcome.

Concept and explanation

To learn this topic effectively, identify what the system, process, material, method or concept is; state its governing idea; describe the important parts or stages; and explain what changes when operating conditions change. The official source wording is retained in the module transcript so that examination answers remain aligned with the syllabus.

Study points

- Define or identify Describe screening and cleaning of pulp 3 Understanding Definition - classification of secondary fibers - Production of secondary fibers. Importance of recycling. Deinked pulp - advantages - economics of deinking. Classification of ink - Deinking process. Variables in deinking operation. Flotation cell. Dipergent of deinked stock - properties and uses of deinked paper. Effluent treatment and waste disposal in deinking plant. Depithing - classification of depithing methods. Pulping of bagasse - properties and uses of bagasse pulp Washing of pulp - objectives and principles. Rotary drum vacuum washer, pressure washer. High consistency washing - latest development in washing. Presses used in washing Screw press - disc press - belt press. Screening and cleaning of pulp. Need of screening and cleaning. Types of screens - rotary screen - pressure screen - centrifugal screen - high consistency screen. Centry cleaners - vertical and horizontal cleaners - inclined cleaner - high consistency cleaner Comprehend the Bleaching of Pulp and importance of agricultural using standard technical terminology.
- Arrange the important components, steps or characteristics in a logical sequence.
- Relate the topic to one laboratory, industrial, professional or design situation where appropriate.
- Use a labelled sketch, comparison table, formula or procedure when the question requires it.

Engineering or professional relevance

In Polytechnic practice, describe screening and cleaning of pulp 3 understanding definition - classification of secondary fibers - production of secondary fibers. importance of recycling. deinked pulp - advantages - economics of deinking. classification of ink - deinking process. variables in deinking operation. flotation cell. dipergent of deinked stock - properties and uses of deinked paper. effluent treatment and waste disposal in deinking plant. depithing - classification of depithing methods. pulping of bagasse - properties and uses of bagasse pulp washing of pulp - objectives and principles. rotary drum vacuum washer, pressure washer. high consistency washing - latest development in washing. presses used in washing screw press - disc press - belt press. screening and cleaning of pulp. need of screening and cleaning. types of screens - rotary screen - pressure screen - centrifugal screen - high consistency screen. centry cleaners - vertical and horizontal cleaners - inclined cleaner - high consistency cleaner comprehend the bleaching of pulp and importance of agricultural should be discussed with attention to safe operation, correct terminology, observable evidence and the relationship between input, process and result.

Topic study guide

Aspect	What to prepare
Definition/identity	What Describe screening and cleaning of pulp 3 Understanding Definition - classification of secondary fibers - Production of secondary fibers. Importance of recycling. Deinked pulp - advantages - economics of deinking. Classification of ink - Deinking process. Variables in deinking operation. Flotation cell. Dipergent of deinked stock - properties and uses of deinked paper. Effluent treatment and waste disposal in deinking plant. Depithing - classification of depithing methods. Pulping of bagasse - properties and uses of bagasse pulp Washing of pulp - objectives and principles. Rotary drum vacuum washer, pressure washer. High consistency washing - latest development in washing. Presses used in washing Screw press - disc press - belt press. Screening and cleaning of pulp. Need of screening and cleaning. Types of screens - rotary screen - pressure screen - centrifugal screen - high consistency screen. Centry cleaners - vertical and horizontal cleaners - inclined cleaner - high consistency cleaner Comprehend the Bleaching of Pulp and importance of agricultural means in the official course context
Study lens	Principle → components or stages → result → application

Aspect	What to prepare
Exam evidence	Definition, labelled explanation, comparison, procedure or example as appropriate

Exam tip: Begin with the exact term, then give an organised explanation with a diagram, table, procedure or example whenever the topic naturally supports it.

Common mistakes: Writing a memorised phrase without explaining the principle; omitting units, labels, conditions or sequence; or mixing this topic with a related but different term.

Malayalam support: Module 3-□□ Describe screening and cleaning of pulp 3 Understanding Definition - classification of secondary fibers - Production of secondary fibers. Importance of recycling. Deinked pulp - advantages - economics of deinking. Classification of ink - Deinking process. Variables in deinking operation. Flotation cell. Dipergent of deinked stock - properties and uses of deinked paper. Effluent treatment and waste disposal in deinking plant. Depithing - classification of depithing methods. Pulping of bagasse - properties and uses of bagasse pulp Washing of pulp - objectives and principles. Rotary drum vacuum washer, pressure washer. High consistency washing - latest development in washing. Presses used in washing Screw press - disc press - belt press. Screening and cleaning of pulp. Need of screening and cleaning. Types of screens - rotary screen - pressure screen - centrifugal screen - high consistency screen. Centry cleaners - vertical and horizontal cleaners - inclined cleaner - high consistency cleaner Comprehend the Bleaching of Pulp and importance of agricultural □□□□□□□□□□□□ □□□□□ definition/meaning □□□□□□□□□□□□□□. □□□□□□ □□□□□□ □□□□□□□, steps, application □□□□□□ □□□□□□□□□ □□□□□□. Technical terms English-□ □□□□□ □□□□□□□□□□□.

▶ **Official syllabus detail and terminology (expand in digital version)**

Module study routine: Read the source wording, make a one-page concept map, practise one short answer and one structured answer, then review the Malayalam support notes.

MODULE 4

residue

This module is presented from the official syllabus scope for Pulp Technology. Use the topic cards for learning and the source transcript for exact coverage.

As specified
official hours

CO-linked
see outcomes

Learning goals

- Explain the official Module 4 scope and its relationship to the course outcomes.
- Recognise the terminology, sequence, components and evidence expected in examination answers.
- Connect at least one official topic to a practical, industrial, laboratory or design context.

Key facts

- Official module title: residue
- Official duration: As specified
- Official topic entries captured: 4
- The full source excerpt is preserved below for coverage checking.

▼ Explain the theory of bleaching

Explain the theory of bleaching is an official topic in Module 4 of Pulp Technology. Study the terminology first, then connect the stated purpose, sequence, components or application to the wider course outcome.

Concept and explanation

To learn this topic effectively, identify what the system, process, material, method or concept is; state its governing idea; describe the important parts or stages; and explain what changes when operating conditions change. The official source wording is retained in the module transcript so that examination answers remain aligned with the syllabus.

Study points

- Define or identify Explain the theory of bleaching using standard technical terminology.
- Arrange the important components, steps or characteristics in a logical sequence.
- Relate the topic to one laboratory, industrial, professional or design situation where appropriate.
- Use a labelled sketch, comparison table, formula or procedure when the question requires it.

Engineering or professional relevance

In Polytechnic practice, explain the theory of bleaching should be discussed with attention to safe operation, correct terminology, observable evidence and the relationship between input, process and result.

Topic study guide

Aspect	What to prepare
Definition/identity	What Explain the theory of bleaching means in the official course context
Study lens	Principle → components or stages → result → application

Aspect	What to prepare
Exam evidence	Definition, labelled explanation, comparison, procedure or example as appropriate

Exam tip: Begin with the exact term, then give an organised explanation with a diagram, table, procedure or example whenever the topic naturally supports it.

Common mistakes: Writing a memorised phrase without explaining the principle; omitting units, labels, conditions or sequence; or mixing this topic with a related but different term.

Malayalam support: Module 4-□□ Explain the theory of bleaching □□□□□□□□□□□□ □□□□□ definition/meaning □□□□□□□□□□□□□. □□□□□□ □□□□□□ □□□□□□□, steps, application □□□□□□ □□□□□□□□□ □□□□□□. Technical terms English-□ □□□□□ □□□□□□□□□□□.

▼ Discuss the types of bleaching

Discuss the types of bleaching is an official topic in Module 4 of Pulp Technology. Study the terminology first, then connect the stated purpose, sequence, components or application to the wider course outcome.

Concept and explanation

To learn this topic effectively, identify what the system, process, material, method or concept is; state its governing idea; describe the important parts or stages; and explain what changes when operating conditions change. The official source wording is retained in the module transcript so that examination answers remain aligned with the syllabus.

Study points

- Define or identify Discuss the types of bleaching using standard technical terminology.
- Arrange the important components, steps or characteristics in a logical sequence.
- Relate the topic to one laboratory, industrial, professional or design situation where appropriate.
- Use a labelled sketch, comparison table, formula or procedure when the question requires it.

Engineering or professional relevance

In Polytechnic practice, discuss the types of bleaching should be discussed with attention to safe operation, correct terminology, observable evidence and the relationship between input, process and result.

Topic study guide

Aspect	What to prepare
Definition/identity	What Discuss the types of bleaching means in the official course context
Study lens	Principle → components or stages → result → application

Aspect	What to prepare
Exam evidence	Definition, labelled explanation, comparison, procedure or example as appropriate

Exam tip: Begin with the exact term, then give an organised explanation with a diagram, table, procedure or example whenever the topic naturally supports it.

Common mistakes: Writing a memorised phrase without explaining the principle; omitting units, labels, conditions or sequence; or mixing this topic with a related but different term.

Malayalam support: Module 4-□□ Discuss the types of bleaching □□□□□□□□□□□□ □□□□□ definition/meaning □□□□□□□□□□□□□□. □□□□□□ □□□□□□ □□□□□□□, steps, application □□□□□□ □□□□□□□□□ □□□□□□. Technical terms English-□ □□□□□ □□□□□□□□□□□.

▼ Summarise the Preparation of bleaching chemicals

Summarise the Preparation of bleaching chemicals is an official topic in Module 4 of Pulp Technology. Study the terminology first, then connect the stated purpose, sequence, components or application to the wider course outcome.

Concept and explanation

To learn this topic effectively, identify what the system, process, material, method or concept is; state its governing idea; describe the important parts or stages; and explain what changes when operating conditions change. The official source wording is retained in the module transcript so that examination answers remain aligned with the syllabus.

Study points

- Define or identify Summarise the Preparation of bleaching chemicals using standard technical terminology.
- Arrange the important components, steps or characteristics in a logical sequence.
- Relate the topic to one laboratory, industrial, professional or design situation where appropriate.
- Use a labelled sketch, comparison table, formula or procedure when the question requires it.

Engineering or professional relevance

In Polytechnic practice, summarise the preparation of bleaching chemicals should be discussed with attention to safe operation, correct terminology, observable evidence and the relationship between input, process and result.

Topic study guide

Aspect	What to prepare
Definition/identity	What Summarise the Preparation of bleaching chemicals means in the official course context

Aspect	What to prepare
Study lens	Principle → components or stages → result → application
Exam evidence	Definition, labelled explanation, comparison, procedure or example as appropriate

Exam tip: Begin with the exact term, then give an organised explanation with a diagram, table, procedure or example whenever the topic naturally supports it.

Common mistakes: Writing a memorised phrase without explaining the principle; omitting units, labels, conditions or sequence; or mixing this topic with a related but different term.

Malayalam support: Module 4-□□ Summarise the Preparation of bleaching chemicals □□□□□□□□□□□□ □□□□□ definition/meaning □□□□□□□□□□□□□. □□□□□□ □□□□□□ □□□□□□□, steps, application □□□□□□ □□□□□□□□□ □□□□□□. Technical terms English-□ □□□□□ □□□□□□□□□□□.

▼ Outline the importance of agricultural residue 3 Understanding Bleaching - need of bleaching - theory of bleaching - Various stages in bleaching - Types of chemicals - parameters - temperature, time, PH, consistency. Equipments in bleach plant - Types of mixers, Types of bleaching - chlorine, chlorine dioxide, hypo chlorate bleaching, Multi stage bleaching, oxygen bleaching, ozone bleaching - Total chlorine free bleaching, Elemental chlorine free bleaching. Preparation of bleaching chemicals. Productive bleaching. Cooking of agricultural residue - importance of agricultural residue. Preparation and pulping of rags, rice, straw, cereal straw, esparto, hemp, jute, flax, bamboo, cotton linter. Text / Reference: T/R Book Title/Author Ronald. G. Macdonald, Pulp & paper science Vol. I, II, - McGraw Hill Bookco, T1 Newyork R1 James.P.Casey, Pulp & paper chemistry and chemical technology Vol. I & II R2 Britt ,Hand book of pulp & paper technology - CBS Publishers R3 Swen.A.Rydholm, Pulping process R4 Pulping process - Interscience publishers - John Viley& sons, Newyork R5 Rance, Handbook of paper science Vol. I, II - H.E R6 Recyling paper from fibre to finished product - TAPPI press R7 Libby C.E., Pulp & paper science Vol. I, II, - McGraw Hill, Newyork R8 TAPPI technical information sheets, I, II, III - TAPPI press Online Resources: Sl.No Website Link 1 https://www.pulpandpaper-technology.com/

Outline the importance of agricultural residue 3 Understanding Bleaching - need of bleaching - theory of bleaching - Various stages in bleaching - Types of chemicals - parameters - temperature, time, PH, consistency. Equipments in bleach plant - Types of mixers, Types of bleaching - chlorine, chlorine dioxide, hypo chlorate bleaching, Multi stage bleaching, oxygen bleaching, ozone bleaching - Total chlorine free bleaching, Elemental chlorine free bleaching. Preparation of bleaching chemicals. Productive bleaching. Cooking of agricultural residue - importance of agricultural residue. Preparation and pulping of rags, rice, straw, cereal straw, esparto, hemp, jute, flax, bamboo, cotton linter. Text / Reference: T/R Book Title/Author Ronald. G. Macdonald, Pulp & paper science Vol. I, II, - McGraw Hill Bookco, T1 Newyork R1 James.P.Casey, Pulp & paper chemistry and

chemical technology Vol. I & II R2 Britt ,Hand book of pulp & paper technology - CBS Publishers R3 Swen.A.Rydholm, Pulping process R4 Pulping process - Interscience publishers - John Viley& sons, Newyork R5 Rance, Handbook of paper science Vol. I, II - H.E R6 Recyling paper from fibre to finished product - TAPPI press R7 Libby C.E., Pulp & paper science Vol. I, II, - McGraw Hill, Newyork R8 TAPPI technical information sheets, I, II, III - TAPPI press Online Resources: Sl.No Website Link 1 https://www.pulpandpaper-technology.com/ is an official topic in Module 4 of Pulp Technology. Study the terminology first, then connect the stated purpose, sequence, components or application to the wider course outcome.

Concept and explanation

To learn this topic effectively, identify what the system, process, material, method or concept is; state its governing idea; describe the important parts or stages; and explain what changes when operating conditions change. The official source wording is retained in the module transcript so that examination answers remain aligned with the syllabus.

Study points

- Define or identify Outline the importance of agricultural residue 3 Understanding Bleaching - need of bleaching - theory of bleaching - Various stages in bleaching - Types of chemicals - parameters - temperature, time, PH, consistency. Equipments in bleach plant - Types of mixers, Types of bleaching - chlorine, chlorine dioxide, hypo chlorate bleaching, Multi stage bleaching, oxygen bleaching, ozone bleaching - Total chlorine free bleaching, Elemental chlorine free bleaching. Preparation of bleaching chemicals. Productive bleaching. Cooking of agricultural residue - importance of agricultural residue. Preparation and pulping of rags, rice, straw, cereal straw, esparto, hemp, jute, flax, bamboo, cotton linter. Text / Reference: T/R Book Title/Author Ronald. G. Macdonald, Pulp & paper science Vol. I, II, - McGraw Hill Bookco, T1 Newyork R1 James.P.Casey, Pulp & paper chemistry and chemical technology Vol. I & II R2 Britt ,Hand book of pulp & paper technology - CBS Publishers R3 Swen.A.Rydholm, Pulping process R4 Pulping process - Interscience publishers - John Viley& sons,

Newyork R5 Rance, Handbook of paper science Vol. I, II - H.E R6 Recyling paper from fibre to finished product - TAPPI press R7 Libby C.E., Pulp & paper science Vol. I, II, - McGraw Hill, Newyork R8 TAPPI technical information sheets, I, II, III - TAPPI press Online Resources: Sl.No Website Link 1 https://www.pulpandpaper-technology.com/ using standard technical terminology.

- Arrange the important components, steps or characteristics in a logical sequence.
- Relate the topic to one laboratory, industrial, professional or design situation where appropriate.
- Use a labelled sketch, comparison table, formula or procedure when the question requires it.

Engineering or professional relevance

In Polytechnic practice, outline the importance of agricultural residue 3 understanding bleaching - need of bleaching - theory of bleaching - various stages in bleaching - types of chemicals - parameters - temperature, time, ph, consistency. equipments in bleach plant - types of mixers, types of bleaching - chlorine, chlorine dioxide, hypo chlorate bleaching, multi stage bleaching, oxygen bleaching, ozone bleaching - total chlorine free bleaching, elemental chlorine free bleaching. preparation of bleaching chemicals. productive bleaching. cooking of agricultural residue - importance of agricultural residue. preparation and pulping of rags, rice, straw, cereal straw, esparto, hemp, jute, flax, bamboo, cotton linter. text / reference: t/r book title/author ronald. g. macdonald, pulp & paper science vol. i, ii, - mcgraw hill bookco, t1 newyork r1 james.p.casey, pulp & paper chemistry and chemical technology vol. i & ii r2 britt ,hand book of pulp & paper technology - cbs publishers r3 swen.a.rydholm, pulping process r4 pulping process - interscience publishers - john viley& sons, newyork r5 rance, handbook of paper science vol. i, ii - h.e r6 recyling paper from fibre to finished product - tappi press r7 libby c.e., pulp & paper science vol. i, ii, - mcgraw hill, newyork r8 tappi technical information sheets, i, ii, iii - tappi press online resources: sl.no website link 1 https://www.pulpandpaper-technology.com/ should be discussed with attention to safe operation, correct terminology, observable evidence and the relationship between input, process and result.

Topic study guide

Aspect	What to prepare
Definition/identity	What Outline the importance of agricultural residue 3 Understanding Bleaching - need of bleaching - theory of bleaching - Various stages in bleaching - Types of chemicals - parameters - temperature, time, PH, consistency. Equipments in bleach plant - Types of mixers, Types of bleaching - chlorine, chlorine dioxide, hypo chlorate bleaching, Multi stage bleaching, oxygen bleaching, ozone bleaching - Total chlorine free bleaching, Elemental chlorine free bleaching. Preparation of bleaching chemicals. Productive bleaching. Cooking of agricultural residue - importance of agricultural residue. Preparation and pulping of rags, rice, straw, cereal straw, esparto, hemp, jute, flax, bamboo, cotton linter. Text / Reference: T/R Book Title/Author Ronald. G. Macdonald, Pulp & paper science Vol. I, II, - McGraw Hill Bookco, T1 Newyork R1 James.P.Casey, Pulp & paper chemistry and chemical technology Vol. I & II R2 Britt ,Hand book of pulp & paper technology - CBS Publishers R3 Swen.A.Rydholm, Pulping process R4 Pulping process - Interscience publishers - John Viley& sons, Newyork R5 Rance, Handbook of paper science Vol. I, II - H.E R6 Recyling paper from fibre to finished product - TAPPI press R7 Libby C.E., Pulp & paper science Vol. I, II, - McGraw Hill, Newyork R8 TAPPI technical information sheets, I, II, III - TAPPI press Online Resources: Sl.No Website Link 1 https://www.pulpandpaper-technology.com/ means in the official course context
Study lens	Principle → components or stages → result → application
Exam evidence	Definition, labelled explanation, comparison, procedure or example as appropriate

Exam tip: Begin with the exact term, then give an organised explanation with a diagram, table, procedure or example whenever the topic naturally supports it.

Common mistakes: Writing a memorised phrase without explaining the principle; omitting units, labels, conditions or sequence; or mixing this topic with a related but different term.

Malayalam support: Module 4-□□ Outline the importance of agricultural residue 3 Understanding Bleaching - need of bleaching - theory of bleaching - Various stages in bleaching - Types of chemicals - parameters -

temperature, time, PH, consistency. Equipments in bleach plant - Types of mixers, Types of bleaching - chlorine, chlorine dioxide, hypo chlorate bleaching, Multi stage bleaching, oxygen bleaching, ozone bleaching - Total chlorine free bleaching, Elemental chlorine free bleaching. Preparation of bleaching chemicals. Productive bleaching. Cooking of agricultural residue - importance of agricultural residue. Preparation and pulping of rags, rice, straw, cereal straw, esparto, hemp, jute, flax, bamboo, cotton linter. Text / Reference: T/R Book Title/Author Ronald. G. Macdonald, Pulp & paper science Vol. I, II, - McGraw Hill Bookco, T1 Newyork R1 James.P.Casey, Pulp & paper chemistry and chemical technology Vol. I & II R2 Britt ,Hand book of pulp & paper technology - CBS Publishers R3 Swen.A.Rydholm, Pulping process R4 Pulping process - Interscience publishers - John Viley& sons, Newyork R5 Rance, Handbook of paper science Vol. I, II - H.E R6 Recyling paper from fibre to finished product - TAPPI press R7 Libby C.E., Pulp & paper science Vol. I, II, - McGraw Hill, Newyork R8 TAPPI technical information sheets, I, II, III - TAPPI press Online Resources: Sl.No Website Link 1 https://www.pulpandpaper-technology.com/ □□□□□□□□□□□□ □□□□□ definition/meaning □□□□□□□□□□□□□. □□□□□□ □□□□□□ □□□□□□□, steps, application □□□□□□ □□□□□□□□□ □□□□□□. Technical terms English-□ □□□□□ □□□□□□□□□□□.

▶ **Official syllabus detail and terminology (expand in digital version)**

Module study routine: Read the source wording, make a one-page concept map, practise one short answer and one structured answer, then review the Malayalam support notes.

RAPID REFERENCE

Concept and formula bank

Answer structure

```
Definition → Principle → Components/steps → Application → Conclusion
```

Use this sequence for descriptive questions when the topic does not require a numerical formula.

Practical record

```
Aim → Apparatus → Procedure → Observation → Result → Safety
```

Use this sequence for laboratory, workshop and field activities.

RAPID REVISION

Diagram and source-transcript library

Module 1 source and topic cards

Jump to official terminology, topic explanations and study guidance.

Module 2 source and topic cards

Jump to official terminology, topic explanations and study guidance.

Module 3 source and topic cards

Jump to official terminology, topic explanations and study guidance.

Module 4 source and topic cards

Jump to official terminology, topic explanations and study guidance.

OFFICIAL SELF-LEARNING

Activities from the syllabus

Use the extracted official activity wording as the record of required self-learning work.

The official PDF does not expose a separate activities heading in the extracted text; consult the source PDF pages for the exact activity list.

EXAMINATION PREPARATION

Assessment methodology

The following source extract preserves the assessment information detected in the official PDF. Verify mark conversions and institutional updates against the current source before an examination.

```
The official assessment structure is reproduced from the supplied PDF.
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Practice-paper notice: The model paper below is generated for revision and is not an official examination paper.

ACTIVE RECALL

Module-wise questions and answers

These are practice questions based on official topic coverage, not official examination questions.

Module 1

▶ **Define or explain Describe the preparation of raw materials 3 Understanding Explain the fundamentals in characterization and. (3 marks)**

▶ **Define or explain 4 Understanding classification of solids. (3 marks)**

▶ **Define or explain Apply the fundamentals of conveying and storage 4 Understanding Raw materials - sources - classification - selection - transportation - debarkers - chipping - drum chipper - disc chipper - calculation of chip size - screening of chips - screens - shaking screens - vibrating screens - grizzles - bucket elevators - sieve analysis - re chipper - conveying of chips - belt conveyor - chain conveyors, roller conveyor, pneumatic conveyors scrap conveyor -screw conveyor - advantageous & disadvantageous - Chip storage - chip silo. (3 marks)**

Module 2

▶ **Define or explain Explain the classification of pulping process 3 Understanding Acquire knowledge of principles of Mechanical. (3 marks)**

▶ **Define or explain 4 Understanding and semi-chemical pulping. (3 marks)**

▶ **Define or explain Compare different pulping processes 3 Understanding Classification of pulping process - Chemical pulping -**

Soda pulping - sulphite process - sulphate pulping - bisulphite process - Principles of chemical pulping - soda process - sulphate process - sulphate pulping - bisulphate process - Bath ratio - Active alkali - effective alkali - sulphidity - consistency - TTAkappa number - permanganate number - cooking process - Digester - Classification - batch process - Direct & indirect heating - Continuous cooking – Kamyr - Pandya digester - rotary Digester Mechanical pulping and semi-chemical pulping-Principles ofmechanical pulping - comparison of pulping processes. Types of mechanical pulping- Ground wood pulping - Grinders - types of grinders; Refiners - variables in refining. Thermomechanical pulping, Chemi thermomechanical pulping. Principles of semichemical pulping. Different semi- chemical pulping processes. Chemi-mech pulping. Super batch cooking. RDH cooking - Oxygen delignification.. (3 marks)

Module 3

▶ **Define or explain List the classification of secondary fibers. (3 marks)**

▶ **Define or explain Explain Deinking and Depithing methods. (3 marks)**

▶ **Define or explain Comprehend washing of pulp. (3 marks)**

▶ **Define or explain Describe screening and cleaning of pulp 3 Understanding Definition - classification of secondary fibers - Production of secondary fibers. Importance of recycling. Deinked pulp - advantages - economics of deinking. Classification of ink - Deinking process. Variables in deinking operation. Flotation cell. Dipergent of deinked stock - properties and uses of deinked paper. Effluent treatment and waste disposal in deinking plant. Depithing - classification of depithing methods. Pulping of bagasse - properties and uses of bagasse pulp Washing of pulp - objectives and principles. Rotary drum vacuum washer, pressure washer. High consistency washing - latest development in washing. Presses used in washing Screw press - disc press - belt press. Screening and cleaning of pulp. Need of**

screening and cleaning. Types of screens - rotary screen - pressure screen - centrifugal screen - high consistency screen. Centry cleaners - vertical and horizontal cleaners - inclined cleaner - high consistency cleaner Comprehend the Bleaching of Pulp and importance of agricultural. (3 marks)

Module 4

▶ **Define or explain Explain the theory of bleaching. (3 marks)**

▶ **Define or explain Discuss the types of bleaching. (3 marks)**

▶ **Define or explain Summarise the Preparation of bleaching chemicals. (3 marks)**

▶ **Define or explain Outline the importance of agricultural residue 3 Understanding Bleaching - need of bleaching - theory of bleaching - Various stages in bleaching - Types of chemicals - parameters - temperature, time, PH, consistency. Equipments in bleach plant - Types of mixers, Types of bleaching - chlorine, chlorine dioxide, hypo chlorate bleaching, Multi stage bleaching, oxygen bleaching, ozone bleaching - Total chlorine free bleaching, Elemental chlorine free bleaching. Preparation of bleaching chemicals. Productive bleaching. Cooking of agricultural residue - importance of agricultural residue. Preparation and pulping of rags, rice, straw, cereal straw, esparto, hemp, jute, flax, bamboo, cotton linter. Text / Reference: T/R Book Title/Author Ronald. G. Macdonald, Pulp & paper science Vol. I, II, - McGraw Hill Bookco, T1 Newyork R1 James.P.Casey, Pulp & paper chemistry and chemical technology Vol. I & II R2 Britt ,Hand book of pulp & paper technology - CBS Publishers R3 Swen.A.Rydholm, Pulping process R4 Pulping process - Interscience publishers - John Viley& sons, Newyork R5 Rance, Handbook of paper science Vol. I, II - H.E R6 Recyling paper from fibre to finished product - TAPPI press R7 Libby C.E., Pulp & paper science Vol. I, II, - McGraw Hill, Newyork R8 TAPPI technical information sheets, I, II, III**

- TAPPI press Online Resources: Sl.No Website Link 1 https://www.pulpandpaper-technology.com/. (3 marks)

PRACTICE ONLY

Practice Model Paper — Not an Official Examination Paper

Attempt one short definition, one structured explanation and one long answer from every module. Use the official assessment pattern reproduced above when selecting time and marks.

Module 1

1-mark definition: State the meaning of **Describe the preparation of raw materials 3 Understanding Explain the fundamentals in characterization and**.

3-mark explanation: Explain one principle, process or comparison from this module.

7-mark answer: Write a structured answer using a labelled diagram, table, procedure, example or application.

Module 2

1-mark definition: State the meaning of **Explain the classification of pulping process 3 Understanding Acquire knowledge of principles of Mechanical**.

3-mark explanation: Explain one principle, process or comparison from this module.

7-mark answer: Write a structured answer using a labelled diagram, table, procedure, example or application.

Module 3

1-mark definition: State the meaning of **List the classification of secondary fibers**.

3-mark explanation: Explain one principle, process or comparison from

Module 4

1-mark definition: State the meaning of **Explain the theory of bleaching**.

3-mark explanation: Explain one principle, process or comparison from

this module.

7-mark answer: Write a structured answer using a labelled diagram, table, procedure, example or application.

this module.

7-mark answer: Write a structured answer using a labelled diagram, table, procedure, example or application.

QUICK REVISION

Exam checklist

Before writing

- Read the command word: define, explain, compare, draw, calculate, analyse or design.
- Use the exact course terminology from the source transcript.
- Plan labels, units, sequence and marks before writing.

Before submitting

- Check every module has been revised.
- Check diagrams, tables, formula symbols and units.
- Separate official syllabus information from personal elaboration.

REFERENCE VOCABULARY

Glossary

Study glossary

Term	Meaning in this lesson
Course Outcome	A capability the student should demonstrate after completing the course.
Module	An official syllabus unit with defined topics and hours.
CIE	Continuous Internal Evaluation.
ESE	End Semester Examination.
Source transcript	A preserved extract of the official syllabus used for coverage checking.

SOURCE-SUPPORTED REFERENCES

References and web resources

References listed in the official PDF

References are included in the official source PDF.

Web resources listed in the official PDF

- Sl.No Website Link https://www.pulpandpaper-technology.com/

IN-PAGE SEARCH

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Prepared from the supplied official SITTTR syllabus PDF for Course 3121. Verify institutional updates against the current official curriculum.