Timber

1

Uses of Timber

- It is used for doors & window frames, shutters of doors & windows, roofing materials, flooring etc.
- Used for formwork of cement concrete, scaffolding etc.
- Used for making furnitures, etc.
- Used for making railway coaches, wagons etc..
- Used for making sleepers etc.-
- Used for the construction of small bridges, boats etc.
- Used as lintels

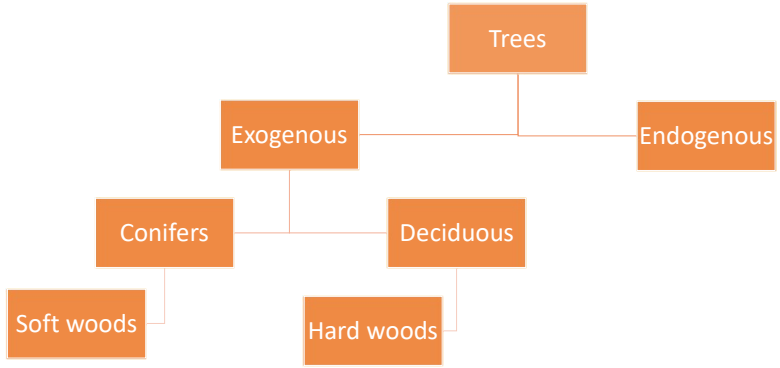
2

TIMBER

- Timber is obtained from trees measuring not < 600mm in girth or circumference
- Denotes wood suitable for building or carpentry
- One of the oldest material used in construction
- In ancient times, it was used in the raw form but presently it is treated, preserved & converted before use
- The following terms are connected with timber
  - Converted timber – timber which is sawn and cut into suitable commercial sizes
  - Rough timber – obtained after felling a tree
  - Standing timber – contained in a living tree

3

Classification of trees



4

Exogenous trees

- Trees grows outwards
- Annual rings are found in the horizontal section
- Used for engineering construction
- Eg: Teak, Deodar, Sal etc.

5

Types of Exogenous Trees

1. Coniferous trees

➢Evergreen trees (Do not shed leaves till new ones are grown)

➢Needle like leaves, Cone shaped fruits

➢ Soft wood

➢ Limited engineering application as they are light in weight and weak

➢Show distinct annual rings

2. Deciduous trees

➢Broad leafed trees

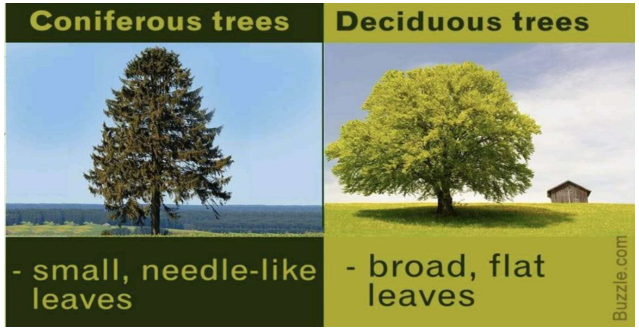
➢Shed leaves in autumn and new ones appear in spring

➢ Hard wood

➢Suitable for engineering application as they are strong, heavy, durable, dark coloured

6

Exogeneous Trees-Types



7

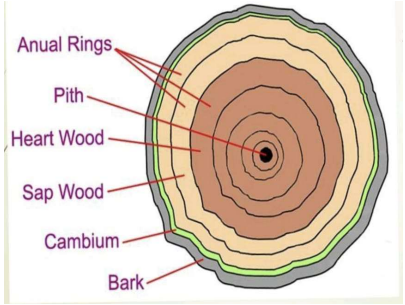
Endogenous trees

- Trees grows inwards
- Fibrous mass in longitudinal section
- Limited engineering application
- Eg: Bamboo, cane, palm

8

Structure of a Tree

1. Pith or medulla
2. Heart wood
3. Sapwood
4. Cambium layer
5. Inner bark
6. Outer bark
7. Medullary rays
8. Annular rings



9

	Hard Wood	Soft Wood
Density	higher density	lower density than most hardwoods.
Cost	more expensive than softwood.	less expensive compared to hardwood.
Growth	slower growth rate.	faster rate of growth.
Medullary rays	Indistinct	Distinct
Annual rings	Indistinct	Distinct
Fire resistance	More	Poor
Colour	Dark	Light
Shedding of leaves	It shed leaves in autumn and winter.	It tends to keep their leaves throughout the year.
Strength	Resistant to tension, compression and shear	Strong in tension, weak in shear
Uses	high-quality furniture, decks, flooring, and construction that needs to last.	It is used for windows, doors, furniture, medium-density fiberboard (MDF), paper, Christmas trees
Examples	Alder, balsa, beech, hickory, mahogany, maple, oak, teak, and walnut.	Cedar, Douglas fir, juniper, pine, redwood, spruce, and yew.

10

Properties of Timber

- Freshly cut timber surface should have shining appearance
- Colour of timber should preferably be dark
- It should be durable, i.e. capable of resisting attack of insects, chemical, physical & mechanical agencies
- It should be elastic, i.e. It should return to its original shape when load causing deformation is removed
- It should be free from serious defects
- It should have straight fibers
- It should have good fire resistance
- It should be hard, i.e. it should offer resistance when penetrated by other body

11

Properties of Timber (cont.)

- A good timber should not deteriorate easily due to mechanical wear or abrasion
- It should be capable of retaining its shape during seasoning
- A good timber should have a sweet smell
- It should give a clear ringing sound when struck with each other dull sound indicated decayed timber
- It should be strong enough for working as a structural member such as beams, rafters etc.
- A good timber should have low water permeability
- Timber with heavy weight is considered as strong & sound

12

Seasoning of Timber

- Newly fallen tree contains about 50% water which is to be removed for using in construction industry
- Process of drying the timber under controlled conditions to extract water at a uniform rate from all parts of timber
- Objectives of seasoning
  - To impart hardness, stiffness, strength, electrical resistance
  - Decrease weight to reduce transportation cost
  - To make it safe against attack by fugus and insects
  - To reduce tendency to crack, shrink and warp
  - To make it easily workable

13

Varieties of timbers in Kerala

- Aini/Anjili
- Banyan
- Bamboo
- Benteak (Ventheak)
- Bijasal (Venga)
- Casaurine (Kattadi)
- Mahagony
- Coconut
- Hopea
- Indian elm
- Irul
- Jack
- Kathal
- Laurel
- Mango
- Palms
- Rosewood
- Rubberwood
- Satinwood
- Simul
- Teak
- Tamarind

14