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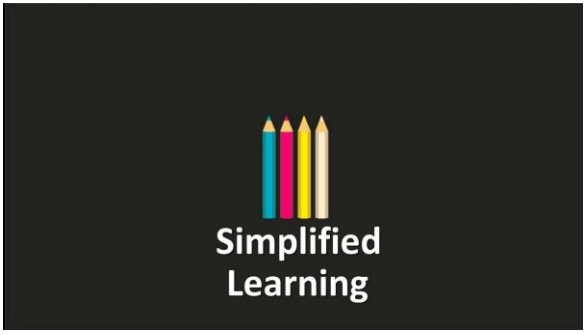
Building Materials – Timber

(Types, Sources, Desired Properties, Defects, Seasoning, Preservation, Conversion)



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Timber obtained after felling a tree is called as

a. Converted timber
b. Rough timber
c. Standing timber
d. None of the above

Timber is used as building for following properties such as

1. Uniformity in strength
2. Uniformity in dimensions
3. Low heat conductivity
4. Resistance to bending
5. Low bulk density

a. All
b. 1,3 and 5
c. 1,2,3 and 4
d. 3,4 and 5

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_____ trees grow in bulk in outward direction

a. Endogenous
b. Exogenous
c. Extrogenous
d. None

Conifers and deciduous are the subtypes of

a. Endogenous trees
b. Exogenous trees
c. Structural timber
d. Non structural timber

For engineering applications, mostly _____ trees are put to use

a. Endogenous
b. Conifers
c. Deciduous
d. None of the above

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Select the properties associated with deciduous type trees

1. Fast growth
2. Dark colours
3. High weight density
4. Good strength along and across grains
5. Easy conversion

a. All
b. 1, 3 and 4
c. 2,3 and 4
d. 1,3,4 and 5

State whether the following statement is true or false

“Hard wood’s age prediction is easier than soft wood”

a. True
b. False

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The central or innermost (core) section of timber is called as

a. Inner bark
b. Sap wood
c. Heart wood
d. Pith

Inner annual rings along the pith is called

a. Bark
b. Sap wood
c. Cambium
d. Heart wood

Sap of a tree is

a. Softest part of tree
b. Water content of tree
c. Fluid that carries nutrients, minerals, hormones with water
d. All of the above

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_____ indicates recent growth of tree

a. Sap wood
b. Cambium layer
c. Outer bark
d. Inner bark

_____ is a thin sap layer that exists between sap wood and inner bark

a. Cambium
b. Medullary wood
c. Both
d. None

_____ is present as outermost element

a. Bark
b. Inner bark
c. Cortex
d. None of the above

Pick the correct statement regarding medullary rays

1. They extend along height of the tree
2. They carry sap along tree length
3. They hold annual rings of heart wood and sap wood together

a. All
b. 1 and 3
c. 2 and 3
d. Only 3

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Property/ies of a good quality timber is/are

a. Close annual rings
b. Compact medullary rays
c. Dark colour
d. All of the above

State whether the following statement is true or false

“striking timber to produce sound is a test adopted to test its quality”

a. True
b. False

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Compressive strength of a timber is tested

a. Along the grain
b. Across the grain
c. Both
d. None

Compressive strength of a timber is more _____ than _____

a. Along the grain, across the grain
b. Across the grain, along the grain
c. 45^{O} to grain orientation, across the grain
d. 10^{O} to 30^{O} to grain orientation, across the grain

For an application where timber log is meant to be used as strut or column, which strength parameter stands important?

a. Strength along grains
b. Strength across grains
c. Both
d. None

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Generally, for a timber, the tensile strength is measured

a. Along the grains
b. Across the grains
c. Both
d. None

Tensile strength of timber = _____ along the grain

a. 0.5 x compressive strength of timber along grains
b. 0.25 x compressive strength of timber along grains
c. 2 x compressive strength of timber along grains
d. 4 x compressive strength of timber along grains

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Select the correct statements regarding bending strength of timber

1. Timber can withstand heavy dynamic bending stress
2. Static bending test over a timber sample is done at one point or 2 points

a. Both
b. Only 1
c. Only 2
d. None

Sawing a timber is easier _____

a. Along the grain
b. Across the grain
c. Both
d. None

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Cleavage strength of timber is determined ____ the grain

a. Parallel
b. Across
c. In any direction

Modulus of elasticity of timber along longitudinal axis is generally _____ times to its modulus of elasticity

a. 2
b. 4
c. 10 to 20
d. 0.25 to 0.5

Timber is affected due to/during

a. Conversion process and seasoning
b. Natural factors
c. Fungi and insects
d. All of the above

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Diagonal grain is a timber defect which is caused by

a. Improper handling
b. Improper sawing
c. Improper felling
d. All of the above

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Fungal attack on timber is probable when

a. Moisture content of the timber is over 20 %
b. Air and hot humid atmosphere is present around timber
c. Both of the above
d. None of the above

The insect that cause defect in timber is

a. Termites
b. Beetles
c. Marine borers
d. All of the above

Burl is a _____ defect in timber

a. Natural
b. Processing
c. Transportation
d. Seasoning

Callus is indication of _____ of tree

a. Improper seasoning
b. Wounds and injuries
c. High moisture content
d. All of the above

Match the pairs

Defect	Description
I. Cup shakes	1. cracks at bark upto sap wood
II. Heart Shakes	2. separate entire annual ring
III. Star shakes	3. cracks along medullary rays
IV. Ring shakes	4. partial curved ring in annual ring

a. I-4, II-3, III-1, IV-2
b. I-4, II-3, III-2, IV-1
c. I-3, II-4, III-1, IV-2
d. I-3, II-4, III-2, IV-1

Large alteration in grain in form of curved grain alignment in a growing tree due to strong wind action is

a. Upsets
b. Radial shakes
c. Twisted fibres
d. Knots

Upsets are caused by

a. Improper felling of a tree
b. Action of fast flowing wind
c. Both of the above
d. None of the above

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_____ are the defects in timber that appears as dark hardened ring spots on outer surface

a. Stains
b. Knots
c. Galls
d. None of the above

Rind gall defect in timber is

a. Abnormal growth on the tree
b. Formed at spots where limbs are cut improperly
c. Identified by curved swelling on tree
d. All of the above

Bow and cup defect in timber are

a. Seasoning defect
b. Defects due to conversion
c. Natural defects
d. None of the above

Match the pairs

Defect	Description
I. Check	1. cracking of structure to form mesh
II. Split	2. spiral distortion of timber
III. Twist	3. cracks which separate fibres partly
IV. Honey-combing	4. crack that spans along 2 ends

a. I-3, II-4, III-2, IV-1
b. I-4, II-3, III-2, IV-1
c. I-4, II-3, III-1, IV-2
d. I-3, II-4, III-1, IV-2

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Timber should be preserved so as to

a. Prolong its service life
b. Increase its durability
c. Secure it from attack of natural agencies
d. All of the above

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A good preservative for timber should be such that

a. It should not penetrate timber at great depth
b. It should be washable with water
c. It should be cheap and easily available
d. All of the above

Chemical salts are

a. Powder based timber preservatives
b. Liquid form timber preservatives
c. Water dissolvable timber preservatives
d. All of the above

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Tarring is the timber preservative method in which

a. Coal tar is pressure injected into timber
b. Coal tar is sprayed over timber surface
c. Coal tar is painted over timber surface
d. All of the above

Creosoting is the process of timber preservation in which

a. Upper surface of timber is partially burnt
b. Linoleum oil is sprayed over the timber
c. Creosote oil is sprayed over the timber
d. Creosote oil is pressure injected into timber

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Assertion- "proper drying and seasoning of timber should be done prior their preservation process is started"

Reason- "preservation coat locks up the contents present inside timber"

a. A – True , R – True and R is correct justification of A
b. A – True , R – True but R is NOT correct justification of A
c. A – True , R – False
d. A – False , R – False

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Which of the following statement is true regarding solignum paints?

a. They are pressure injected into timber
b. Timber is dipped in solignum pain tanks for its application
c. They are hot painted with brush
d. None of the above

Most locally and easily available preservative with easiest method of application is

a. Solignum
b. Oil paint
c. Creosote
d. Coal tar

_____ consists of burning the outer surface of timber

a. Charring
b. Torching
c. Pyrocoating
d. Flaming

Easiest and quickest method of preservative application is

a. Charring
b. Painting
c. Pressure injection
d. Dipping

Fire resistance of timber can be improved by

a. Chemical coating
b. Charring
c. Resin removal
d. All of the above

Technically seasoning is

a. Removal of moisture from timber
b. Application of protective coat over timber
c. Both of the above
d. None of the above

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Purpose of seasoning is

1. Lower the weight
2. Reduce cracking/splitting tendency
3. Impart strength to timber

a. All of the above
b. 2 and 3
c. 1 and 3
d. 1 and 2

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“Natural seasoning can lower the water content in timber to about 2 to 4 %”

a. True
b. False

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Disadvantages of natural seasoning is/are

a. Requires skilled supervision
b. Stack size is limited
c. Difficulty in parameter control
d. All of the above

Lack of parameter control in air seasoning result into

a. End splitting
b. Warping
c. Rotting
d. All of the above

Advantages of air/natural seasoning is

1. Economy
2. No sizing/stacking restriction
3. No power requirements
4. Yearlong process continuation
5. Evenness of exposure

a. All of the above
b. 1,2,3 and 4
c. 2,3,4 and 5
d. 1,2 and 3

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Limitation of artificial seasoning is/are:

1. Stack size
2. Power and space requirements
3. Skilled supervision
4. Maintenance and capital cost
5. Warping defects due to strong seasoning force

a. All of the above
b. 1,2,3 and 4
c. 2,3,4 and 5
d. 1,3,4 and 5

Select the points regarding natural and artificial seasoning respectively

1. Economy
2. Evenness
3. Process control
4. Less time span requirements
5. Ease of process

a. Natural – 1 and 5, Artificial – 2,3 and 4
b. Natural – 1,2 and 4, Artificial – 3 and 5
c. Natural – 1 and 4, Artificial – 2,3 and 5
d. Natural – 1 and 3, Artificial – 2,4 and 5

Fastest method of artificial seasoning is

a. Chemical
b. Electrical
c. Kiln
d. Boiling

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Boiling and water immersion type seasoning help timber to

a. Swell uniformly first then drying them artificially ensures evenness
b. Get rid of weak portions such as sap
c. Both
d. None

Timber conversion means

a. Felling the trees to use them as timber
b. Converting a land/forest for timber growth/production
c. Processing timber by cutting and sawing into desired shapes
d. None of the above

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To obtain strong timber units from processing

a. Sawing is done tangential to annual rings
b. Sawing is done perpendicular to annual rings
c. Sawing is done along the cleavage
d. Sawing is done along weak section

Trunk of tree obtained after chopping of limbs is called as

a. Plank
b. Pole
c. Log
d. Batten

Veneering is

a. Process of making blockboard from thin sheets of wood
b. Compressing grains of wood to form a sheet
c. Slicing thin sheets of wood for blockboards / plywood
d. Compressing fine threads of fibre to obtain blockboards

Advantage/s of plywood is/are

a. Uniformity of strength in all direction
b. Less shrinkage
c. No splitting
d. All of the above

For making plywood, atleast ___ laminas are required

a. 5
b. 3
c. 2
d. 4

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_____ is used to make foundation piles

a. Sal timber
b. Banyan timber
c. Guava timber
d. None of the above

Highest quality timber amongst following is obtained from

a. Rosewood
b. Babul
c. Benteak
d. Oak