6 CHAPTER

Timber and Stone

Q.1 The age of a tree can be known by examining
(a) cambium layer (b) annular rings
(c) medullary rays (d) heart wood

Q.2 Which of the following tree yields hard wood?
(a) Deodar (b) Chir
(c) Shishum (d) Pine

Q.3 The radial splits which are wider on the outside of the log and narrower towards the pith are known as
(a) heart shakes (b) cupshakes
(c) starshakes (d) pine

Q.4 Which of the following timber is suitable for making sports goods?
(a) Mulberry (b) mahogany
(c) sal (d) deodar

Q.5 Plywood has the advantage of
(a) greater tensile strength in longer direction.
(b) greater tensile strength in shorter direction.
(c) same tensile strength in all the directions.
(d) none of the above.

Q.6 The moisture content in a well seasoned timber is
(a) 4% to 6% (b) 10% to 12%
(c) 15% to 20% (d) 100%

Q.7 The plywood
(a) has good strength along the panel only.
(b) can be split in the plane of the panel.
(c) has greater impact resistance to blows than ordinary wood.
(d) cannot be bent more easily than ordinary wood of same thickness.

Q.8 The practical limit of moisture content achieved in air drying of timber is
(a) 5% (b) 15%
(c) 25% (d) 35%

Q.9 First class timber has an average life of
(a) less than one year
(b) 1 to 5 years
(c) 5 to 10 years
(d) more than 10 years

Q.10 Fibre saturation point of timber is the moisture content in percent when
(a) it is 12%.
(b) the cell walls are saturated with water and cells cavity contain no water.
(c) the cell walls are dried and cells cavity contain water.
(d) the cell walls are dried and cells cavity contain no water.

Q.11 Which of the following pairs regarding the defects in timber are correctly matched?
1. Upsets ..... Due to over maturity and unventilated storage of wood
2. Foxiness ..... Due to crushing of fibres running transversely
3. Star shakes .....Radial splits widest at the circumference and diminishing towards the centre
4. Heart shakes ..... Cracks widest at the centre and diminishing towards the outer circumference

Select the correct answer using the codes given below.
(a) 1 and 2 (b) 3 and 4
(c) 1, 3 and 4 (d) 2 and 4

Q.12 Neoprene is suitable for use in
(a) bearings of bridges
(b) hard duty rubber coatings of floors
(c) joinery works
(d) floors of dance halls

Q.13 Consider the following statements:
Seasoning of timber results in
1. increased strength.
2. increased durability.
3. reduced resilience.
Which of these statements are correct?
(a) 1, 2 and 3 (b) 1 and 3
(c) 1 and 2 (d) 2 and 3

Q.14 Timber can be made more fire resistant by
(a) dipping and steeping process.
(b) Sir Abel's process.
(c) charring.
(d) hot and cold open tank treatment.

Q.15 Consider the following statements:
Among the more common varieties of timber, namely, Sal, Mango and Deodar,
1. Sal is the strongest.
2. Mango is the least durable.
3. Deodar is the lightest.
Which of the above statements are correct?
(a) 1, 2 and 3 (b) 1 and 2
(c) 1 and 3 (d) 2 and 3

Q.16 The wood preservative "Creosote" is derived from
(a) wood or coal
(b) acidic cupric chromate
(c) chromatid zinc chloride
(d) pentachlorophenol

Q.17 Match List-I with List-II and select the correct answer by using the codes given below the list:

List-I	List-II
A. Granite	1. Water worn pebble
B. Sand Stone	2. Igneous rock
C. Gneiss	3. Sedimentary rock
D. Gravel	4. Metamorphic rock

Codes:

	A	B	C	D
(a)	1	2	3	4
(b)	2	3	4	1
(c)	3	4	1	2
(d)	4	3	2	1

Q.18 Match List-I with List-II and select the correct answer by using the codes given below the list:

List-I	List-II
A. Granites	1. Uttar Pradesh
B. Basalts	2. Gujarat
C. Slates	3. Deccan Traps
D. Sand stones	4. Rajasthan

Codes:

	A	B	C	D
(a)	1	3	2	4
(b)	2	3	4	1
(c)	2	3	1	4
(d)	4	3	1	2

Q.19 Match List-I with List-II and select the correct answer by using the codes given below the list:

List-I	List-II
A. Ancient Indian temples	1. White marble
B. Taj Mahal, Agra	2. Granite
C. Red Fort, Delhi	3. Pink sand stone
D. Rashtrapati Bhawan, Delhi	4. Red sand stone

Codes:

	A	B	C	D
(a)	2	1	4	3
(b)	1	2	3	4
(c)	2	3	1	4
(d)	1	2	4	3

Q.20 Match List-I with List-II and select the correct answer by using the codes given below the list:

List-I	List-II
A. Granite	1. Quartzite
B. Sand stone	2. Slate
C. Lime stone	3. Marble
D. Shale	4. Gneiss

Codes:

	A	B	C	D
(a)	1	2	3	4
(b)	4	3	2	1
(c)	4	1	3	2
(d)	3	2	1	4

Q.21 Match List-I with List-II and select the correct answer by using the codes given below the list:

List-I	List-II
A. Hardest rock	1. Slate
B. Shingle	2. Marble
C. Ornamental work	3. Granite
D. Metamorphic rock	4. Water worn pebbles

Codes:

	A	B	C	D
(a)	1	3	2	4
(b)	4	2	3	1
(c)	3	4	2	1
(d)	1	4	2	3

Q.22 Consider the following statements:
Hardest timber is obtained from the wood growing in
1. the moderately dry climatic regions.
2. the Himalayan slopes.
3. the open areas.
4. the thin jungles.
Which of these statements are correct?
(a) 1 and 3 (b) 1 and 4
(c) 2 and 3 (d) 2 and 4

Q.23 Match List-I with List-II and select the correct answer using the codes given below the lists:

List-I	List-II
A. Pigment	1. Turpentine
B. Drier	2. Iron Oxide
C. Thinner	3. Zinc Sulphate
D. Extender	4. Aluminium Silicate

Codes:

	A	B	C	D
(a)	3	2	1	4
(b)	3	2	4	1
(c)	2	3	1	4
(d)	2	3	4	1

Q.24 Match List-I with List-II and select the correct answer using the codes given below the lists:

List-I	List-II
A. Agricultural implements	1. Jack
B. Boat construction	2. Deodar
C. Railway sleepers	3. Babul
D. Musical instruments	4. Benteak

Codes:

	A	B	C	D
(a)	1	2	3	4
(b)	3	4	2	1
(c)	4	3	1	2
(d)	2	1	4	3

Q.25 Match List-I (Terms) with List-II (Brief definition) and select the correct answer using the codes given below the lists:

List-I	List-II
A. Sap wood	1. Separation between adjacent layers of tissues
B. Knot	2. Disintegration caused by fungi
C. Shake	3. A branch base embedded in timber
D. Rot	4. Outer layers of a log of wood

Codes:

	A	B	C	D
(a)	1	2	3	4
(b)	3	4	2	1
(c)	1	3	2	4
(d)	4	3	1	2

Q.26 Plywood is obtained from
(a) Bamboo
(b) Teak wood
(c) Structural timber
(d) Commonly available timber

Q.27 Cracks in a tree may develop due to
1. storm 2. drying of core
3. frost
Which of these statements is/are correct?
(a) Both 1 and 2 (b) Both 2 and 3
(c) both 1 and 3 (d) 1, 2 and 3

Q.28 The purpose of seasoning of wood is to
1. reduce the voids.
2. remove the curves.
3. reduce the moisture content.
4. change the direction of grains.
Which of these statements is/are correct?
(a) Only 1 (b) Only 3
(c) Both 1 and 3 (d) Both 2 and 4

Q.29 As a construction material, plywood is preferred to thin planks of timber because of
(a) good strength and dimensional stability in both lateral and longitudinal direction.
(b) good dimensional stability in both longitudinal and lateral directions.
(c) good strength in both longitudinal and lateral directions.
(d) savings in cost and environmental considerations.

Q.30 Seasoning of timber is required to
(a) soften the timber.
(b) harden the timber.
(c) straighten the timber.
(d) remove sap from the timber.

Q.31 During the conversion of timber by sawing, in order to obtain strong timber pieces, the cuts should be made by
(a) ordinary sawing (b) tangential sawing
(c) quarter sawing (d) radial sawing

Q.32 Radial splits in timber originating from 'bark' and narrowing towards the 'pith' are known as
(a) heart shakes (b) star shakes
(c) cup shakes (d) knots

Q.33 Seasoning of timber essentially involves
(a) strengthening of cells in timber.
(b) reducing the moisture content to a level below its fibre-saturation point.
(c) facilitating equal shrinkage in all the directions so as to prevent warping.
(d) preventing cracking due to defects and shakes.

Q.34 The modulus of elasticity of timber is about
(a) 0.5 to 1.0 × 10^4 N/mm^2
(b) 1.0 to 1.5 × 10^4 N/mm^2
(c) 1.5 to 2.0 × 10^4 N/mm^2
(d) 2.0 to 2.5 × 10^4 N/mm^2

Q.35 A timber beam of effective span L and of cross-section $b \times d$ is said to be laterally supported if d/b and L/b are respectively
(a) less than 1 and less than 48.
(b) less than 2 and less than 49.
(c) less than 3 and less than 50.
(d) less than 4 and less than 51.

Q.36 Match List-I (Species) with List-II (Uses) and select the correct answer using the codes given below the lists:

List-I	List-II
A. Babul	1. Tennis rackets
B. Benteak	2. Boats
C. Bijasal	3. Agricultural tools
D. Mulberry	4. Furniture

Codes:

	A	B	C	D
(a)	4	1	3	2
(b)	3	2	4	1
(c)	4	2	3	1
(d)	3	1	4	2

Q.37 Consider the following statements:
Conifers
1. are endogenous trees.
2. grow outwards.
3. have pointed needle like leaves.
Of the above, the correct statements are :
(a) 1 and 2 (b) 2 and 3
(c) 1, 2 and 3 (d) 1 and 3

Q.38 The age of trees can be predicted by
(a) length of medullary rays.
(b) counting number of rings.
(c) by measuring the diameter of pith.
(d) by the thickness of bark.

Q.39 The drawback of electric seasoning of timber is
(a) checks (b) splitting
(c) cracks (d) reduced strength

Q.40 Seasoning of timber is necessary to
(a) increase the fire resistance.
(b) increase the vermin resistance.
(c) reduce the microbial substances.
(d) expel the moisture present in timber.

Q.41 How much time, a timber may require for natural seasoning?
(a) 20 months (b) 4 - 6 months
(c) 1 year (d) 2 years

Q.42 Fire proofing of timber
(a) makes the timber surface fire proof.
(b) makes it difficult to ignite and support its own combustion.
(c) does not allow the fire come closer to wood.
(d) extinguishes the fire and dissipates the heat generated.

Q.43 Knots reduce the tensile strength of wood
(a) along the grain.
(b) across the grain.
(c) tangential to the grain.
(d) none of the above.

Q.44 Plywood has great stiffness and strength
(a) across the grains.
(b) along the grains.
(c) both (a) and (b).
(d) tangential to the grain.

Q.45 The expansion and shrinkage of plywoods are comparatively very low as
(a) they are held in position by adhesives.
(b) they are glued under pressure.
(c) plies are placed at right angles to each other.
(d) they are prepared from veneers.

Q.46 According to the relevant IS code, the weight of the timber is to be reckoned at a moisture content of
(a) zero (b) 4%
(c) 8% (d) 12%

Q.47 Consider the following methods of prevention of timber :
1. Pressure application
2. Brush application
3. Dipping
4. Open tank
The correct sequence of these methods in the increasing order of their effectiveness is:
(a) 1, 3, 4, 2 (b) 3, 4, 2, 1
(c) 2, 3, 4, 1 (d) 4, 2, 1, 3

Q.48 Assertion (A) : Dimensional changes in wood result due to variation in the moisture content of the wood with atmospheric condition.
Reason (R) : The cell walls in wood are highly hygroscopic and when exposed to moisture, absorb large amounts of water and swell.
(a) both A and R are true and R is the correct explanation of A
(b) both A and R are true but R is not a correct explanation of A
(c) A is true but R is false
(d) A is false but R is true

Q.49 The compressive strength of burnt clay bricks as per IS 1077 is
(a) 100 kg/cm^2 (b) 150 kg/cm^2
(c) 100-150 kg/cm^2 (d) 35-350 kg/cm^2

Q.50 The bricks used extensively for basic refractories in furnaces are
(a) Chrome bricks (b) Sillimanite bricks
(c) Magnesite bricks (d) Fosterite bricks

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Answers **Timber and Stone**

1. (b)	2. (c)	3. (c)	4. (a)	5. (c)	6. (b)	7. (c)	8. (b)	9. (c)	10. (b)
11. (b)	12. (a)	13. (c)	14. (b)	15. (a)	16. (a)	17. (d)	18. (b)	19. (a)	20. (c)
21. (c)	22. (a)	23. (c)	24. (b)	25. (d)	26. (c)	27. (d)	28. (b)	29. (a)	30. (d)
31. (d)	32. (b)	33. (b)	34. (a)	35. (c)	36. (b)	37. (b)	38. (b)	39. (b)	40. (d)
41. (b)	42. (b)	43. (b)	44. (c)	45. (c)	46. (d)	47. (c)	48. (a)	49. (d)	50. (c)

Explanations Timber and Stone

1. (b)
Annular ring consists of closed cells of woody fibres and tissues arranged in distinct approximately concentric circle around pith. Every year one such ring is formed. Hence the total number of annual rings indicates the age of the tree. The wood near the bark is the youngest.

2. (c)
The deciduous trees have flat and broad leaves. These trees yield hard woods. The typical examples of such trees are teak, mahogany, sheesham, oak etc.

3. (c)
The star shakes extend from bark towards centre of stem; they are wider on the outside ends and narrower on the inside ends.

11. (b)
Upsets caused by crushing of fibres running transversely during the growth of tree. Foxiness is sign of decay appearing in the form of yellow or red tinge or discoloration of overmatured trees.

16. (a)
Creosote is the most commonly used preservative for timber. It is derived usually from wood or coal.

31. (d)
The order of strength of timber section is
Radial sawing > Quarter sawing > Ordinary sawing > Tangential sawing

32. (b)
Cup shakes are caused by rupture of tissue in a circular direction. It is a curved track and separates partly one annual ring from the other. Heart shakes occur in the centre of the cross-section and they extend from pith to sap wood in the direction of medullary rays. They occur due to shrinkage of interior part of tree which is approaching maturity. Radial shakes and star shakes extend from bark towards the sapwood. Star shakes are wider on the outside ends bark and narrower on the inside ends (sapwood). The radial shakes are fine, irregular and numerous.

34. (a)
The species of timber recommended for construction purpose are classified into three groups on the basis of their modulus of elasticity.
Group *A* : with modulus of elasticity above 125 t/cm^2 (12500 N/mm^2)
Group *B* : with modulus of elasticity between 98 t/cm^2 (9800 N/mm^2) and 125 t/cm^2 (12500 N/mm^2)
Group *C* : with modulus of elasticity above 56 t/cm^2 (5600 N/mm^2) and below 98 t/cm^2 (9800 N/mm^2)

35. (c)
To prevent lateral buckling, the minimum width of the beam is kept equal to or more than $L/50$ and $d/3$. In no case width should be less than 50 mm.

36. (b)
Babul is used for bodies and wheels of bullock carts, agricultural instruments, tool handles, etc.
Benteak is used for building construction, boat construction, furniture, etc.
Bijasal is used for ordinary building construction, cart wheel, furniture, etc.
Mulberry is used for baskets and sport goods like hockey sticks, tennis rackets, cricket bats, etc.

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