

Sardar Patel University  
M. Sc. Botany (III Semester) Examination  
Thursday, 6<sup>th</sup> December 2012  
2. 30 p.m. to 5. 30 p.m.  
Paper PS03E BOT01: Wood biology

Max. Marks: 70 (Seventy only)

N.B.: Answers of all the questions (including multiple choice questions) should be written in the provided answer book only.

QI. Select the appropriate answer for the following multiple choice questions: (8 X 1 = 8)

1. Torus is found in:  
a) vessel elements    b) parenchyma cells    c) fibers    d) tracheids
2. The sudden transition from early to latewood is identified under microscope due to the variation in:  
a) number of vessels and fibers                      b) number of tracheids and fibers  
c) number of parenchyma and vessels              d) wall thickness and cell area
3. In trees starch is stored in:  
a) Heart wood    b) sap wood    c) early wood tracheids    d) latewood tracheids
4. G-layer is mostly composed of :  
a) Lignin and cellulose    b) cellulose and pectin    c) pectin and hemicelluloses  
d) cellulose alone
5. G and S units of lignin are distributed in the cell walls of:  
a) dicots    b) gymnosperms    c) monocots    d) pteridophytes
6. Cellulose is incorporated into cell walls in the form of:  
a) microtubule    b) microfibril    c) macrofibril    d) micelle
7. White rot fungi secrete enzyme laccase to breakdown:  
a) Lignin    b) cellulose    c) pectin    d) hemicelluloses
8. Protection of wood from deterioration and decomposition is known as:  
a) conservation    b) preservation    c) protection    d) drying

QII. Write short answer to any SEVEN of the following:

(7 X 2 = 14)

- 1) Diffuse porous wood    2) false rings    3) lignin monomers    4) blind pit    5) cellobiose
- 6) brown rot of wood    7) compound middle lamella    8) late wood    9) vasicentric axial parenchyma

PTO

- QIII. a) Explain the structural and functional similarities and dissimilarities between different types of elements in softwood and hard wood. (06)
- b) How do you differentiate the transverse, tangential and radial sections of hard wood under microscope based on their anatomical features. (06)
- OR
- b) Describe the anatomical features of parenchyma cells and rays in the identification of hard wood tree species. (06)
- QIV. a) What is xylogenesis? Explain the various structural and functional changes that during wood formation. (06)
- b) Citing the applications of growth rings explain their formation in soft and hard wood tree species. (06)
- OR
- b) With the help of labeled diagrams explain the structure, distribution and functions of different types of pits occurring on the walls of wood elements. (06)
- QV. a) What is eccentric growth? How does it differ structurally between hard and soft wood species? (06)
- b) Differentiate between sap wood and heart wood and explain the structural and biochemical changes occurring during heart wood formation. (06)
- OR
- b) What is seasoning of wood? Explain the different methods followed in wood seasoning and preservation. (06)
- QVI. a) Describe the structure, function and distribution of lignin in wood elements. (06)
- b) Give an account of distribution, chemical composition and assembly of different polymers associated with elements in wood. (06)
- OR
- b) What is degradation of wood? Citing different agents involved explain the methods followed to prevent degradation of wood. (06)
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