

## QUESTION BANK

Department of Pulp and Paper Technology  
Laxminarayan Institute of Technology, Nagpur  
Subject: Special Technology- I (Pulp and Paper Tech.)

Which of the following organisms have the chromosomes and collected in a nucleolus with membrane in plants?

- A. Eukaryotic
- B. Prokaryotic
- C. Phylogenetic
- D. Protozoa

Which plants reproduced with spores and it's require at least a drop of water for the fertilization?

- A. Chareophyta
- B. Vascular
- C. Non vascular
- D. Green algae

\_\_\_\_\_ is the origin to the chloroplasts, a plant organelle that is responsible for the photosynthesis in all plants and still have their own DNA encoding for some of its functional proteins?

- A. Mosses
- B. Algae
- C. Bacteria
- D. phylogenetic

\_\_\_\_\_ can have two or several cotyledons.

- A. Gymnosperms
- B. Angiosperms
- C. Gnetophytes
- D. Nymphaeales

"ANITA" is a group of not close related primitive angiosperms. What ANITA stand for?

- A. Angiosperms, Nymphaeales, Illiciales, Trimeniaceae, Ausrobaileyaceae
- B. Amborella, Nymphaeales, Illiciales, Trimeniaceae, Ausrobaileyaceae
- C. Amborella, Nymphaeales, Illiciales, Trimeniaceae, Angiosperms
- D. Amborella, Nymphaeales, Illiciales, Taxodiaceae, Ausrobaileyaceae

Which of the following zone is a very thin layer consisting of living cells between the wood (xylem) and the inner bark (phloem)?

- A. Cambium
- B. Pith
- C. Canal growth ring
- D. Outer bark

What is the function of Tracheids in softwood?

- A. Provide for water transport
- B. Act as storage tissue
- C. Produces pits
- D. Act as membrane

Water and mineral transport from roots to aerial parts of the plant by means of \_\_\_\_\_.

- A. Phloem
- B. Tyloses
- C. Xylem
- D. All options

\_\_\_\_\_ cells have relatively large cavities and thin walls.

- A. Earlywood
- B. Latewood
- C. Reaction wood
- D. Normal wood

The response of a tree to abnormal environmental or physical stresses associated with leaning trees and crooked limbs is\_\_\_\_\_.

- A. Sap wood
- B. Heart wood
- C. Reaction wood
- D. None of the above

Glycosides are cyclic sugar derivatives in which the anomeric hydroxyl group has been replaced with \_\_\_\_\_.

- A. Hydroxymethyl group
- B. Furanose link
- C. Aroxy group
- D. Carbonyl group

Anhydro sugars are formed from sugars by elimination of water from a pair of hydroxyl group is\_\_\_\_\_.

- A. Epoxide
- B. Glycosans
- C. Ethers
- D. Epoxide

Those have one cotyledon (germinating leaf) called as\_\_\_\_\_.

- A. Eudicotyledones
- B. Monocotyledons
- C. Magnoliids
- D. Gnetofydes

A plant can be killed by stripping away the bark in a circle around the trunk or stem. This destroys the phloem, which is present towards the outside of xylem. This is called\_\_\_\_\_.

- A. Vascular system
- B. Sieve-tube element
- C. Tyloses

#### D. Girdling

The vascular cambium is composed of two types of meristematic cells. One is the Ray initial so what is the another meristematic cells?

- A. Fusiform initial
- B. anticlinal initial
- C. Clinical initial
- D. Cytoplasmic initial

The ratio of actual fiber length to the distance between the 2 fiber ends minus 1, is called as\_\_\_\_\_.

- A. Fiber curl
- B. Fiber kink
- C. Average fiber width
- D. Fiber density

\_\_\_\_\_ can be calculate by 2 times the single fiber wall thickness divided by the diameter of the lumen?

- A. Muhlsteph ratio
- B. Runkel ratio
- C. Collapse index
- D. Fiber flexibility

The substrate is treated with phosphotungstic acid that penetrate the capillary space and loose texture this method is\_\_\_\_\_.

- A. Muhlethaler
- B. Marx-Figini and Schules
- C. Rawland
- D. None of the above

\_\_\_\_\_are included those obtained from the vascular bundles of several monocotyledonous plants.

- A. Bast fiber
- B. Leaf fiber
- C. Grass fiber
- D. Fruit fiber

Abaca fiber is one of the example of \_\_\_\_\_ fiber.

- A. Bast
- B. Leaf
- C. Grass
- D. Fruit

The intrinsic viscosity of a polymer such as cellulose is related to the molecular weight by the\_\_\_\_\_.

- A. Mark-Houwink equation
- B. Toshiaki Dobashi equation
- C. Hooke's law
- D. Oswald and de Waele equation

Which one of the following method has been used for quantitative measurement of pectin?

- A. Microdissection
- B. Whiting and Goring
- C. Hydroxyamine iron
- D. Bromination ( $\text{CHCl}_3$ )

Which of the following degradation refers to cleavage at the glycosidic linkage between the 1C carbon and oxygen by an acid?

- A. Thermal
- B. Alkaline
- C. Oxidative
- D. Hydrolytic

Which of the following is not most important commercial esters?

- A. Cellulose xantahte
- B. Cellulose nitrate
- C. Cellulose Xantham
- D. Cellulose acetate

The chemical and physical properties of the final product (conversion of cellulose into ether/ester) is dependent on\_\_\_\_\_.

- A. The uniformity and the length of the cellulose molecules
- B. The uniformity of substitution
- C. The type of substitution group
- D. All

Optical rotation of the solution changes continuously until an equilibrium is reached, this phenomenon is called \_\_\_\_\_.

- A. Mutarotation
- B. Anomers
- C. Conformations
- D. Half-chair conformations

66 % concentrated nitric acid does not probably dissolved cellulose but it forms an addition compound, which is an intermediate in the nitration of cellulose reaction. What is the name of this compound?.

- A. Cupriethylenediamine
- B. Cupraammonium rayon
- C. Knecht
- D. Schweizer

Which one of the following method has been used to study the distribution of lignin in wood?

- A. Potassium permanganate staining
- B. Post staining with heavy metal
- C. Hydroxylamine iron staining

D. Hydroxylamine staining

Anhydro sugars are formed from sugars by elimination of water from a pair of hydroxyl group is known as \_\_\_\_\_.

- A. Epoxide
- B. Ethers
- C. Esters
- D. Glycosans

In thermal degradation of cellulose, rapid pyrolysis of cellulose takes place at higher

\_\_\_\_\_ bonding holds ligno cellulose fibers together in paper.

- A. Sulfate
- B. Hydrogen
- C. Halogen
- D. Phosphate

Glycosides are cyclic sugar derivatives in which the anomeric hydroxyl group has been replaced with \_\_\_\_\_.

- A. Hydroxymethyl group
- B. Furanose link
- C. Aroxyl group
- D. Carbonyl group

Identify the correct statement.

- A. The absorbed moisture swell the cellulose and this may lead to change the crystalline structure
- B. Without containing moisture in cellulose, it absorbes moisture from the atmospere and that decreases the relative humididty
- C. The absorbed moisture swell the cellulose and this may not lead to change the crystalline structure

D. During the swelling the cellulose-water molecules are broken and replaced by cellulose-cellulose hydrogen bond

Which of the following properties is not strongly affected the degree of substitution?

- A. Plasticity
- B. Swelling
- C. Solubility
- D. Sorption

The average number of hydroxyl groups substituted of the 3 available in the anhydro-glucose unit, is called as\_\_\_\_\_.

- A. Degree of Polymerization
- B. Degree of Substitution
- C. Degree of Reduction
- D. Degree of hydrolysis

Generally the nitrate esters are prepared by the reaction between cellulose and nitric acid in presence of \_\_\_\_\_.

- A. Sulfuric acid and Water
- B. Sodium hydroxide and Water
- C. Methyl chloride and CMC
- D. Sodium hydroxide and Sulfuric acid

Which of the following group can be divided into acyclic, bicyclic, tricyclic, tetracyclic, and macrocyclic structural types and these can be present either as hydrocarbons or as derivatives with hydroxyl, carbonyl, or carboxyl groups?

- A. Diterpenoids
- B. Sesquiterpenoids
- C. Monoterpenoids
- D. Polyterpenoids

Dehydrogenative treatment of coniferyl alcohol with hydrogen peroxide in the presence of peroxidase enzyme yields synthetic lignin named as\_\_\_\_\_.

- A. Milled wood lignin
- B. Cellulolytic enzyme lignin
- C. Dehydrogenation polymer
- D. Klason lignin

It is crucial to know the rate of \_\_\_\_\_gain or loss of paper to achieve equilibrium in order to understand how long it takes to condition sample.

- A. Lignin
- B. Pulp
- C. Moisture
- D. Poison

The chemical and physical properties of the final product (conversion of cellulose into ether/ester) is dependent on\_\_\_\_\_.

- A. The uniformity and the length of the cellulose molecules
- B. The uniformity of substitution
- C. The type of substitution group
- D. All of the above