

FINAL EXAM_SEG_5-6

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This is a required question

Name

Your answer

Of the following, the one that is not a manifestation of desertification is *

- ☐ Declining groundwater tables
- ☐ salinization of topsoil and water
- ☒ production of deposits of MnO_2 and $\text{Fe}_2\text{O}_3 \cdot \text{H}_2\text{O}$ from anoxic processes,
- ☐ reduction of surface waters,

Deposits of iron minerals are often found where groundwater flows to the surface. Use a chemical reaction to explain this observation. *



The ring size and number of linked tetrahedral present in the $[\text{Si}_6\text{O}_{18}]^{12-}$ are * *

- ☐ 6 and 12
- ☒ 6 and 6
- ☐ 12 and 6
- ☐ 12 and 12

An example of sedimentary rocks is *

- ☒ limestone
- ☐ basanite
- ☐ carbanite
- ☐ granite

What is the upper surface of the zone saturation called *

- ☐ Aquifier
- ☐ Aquiclude
- ☒ Water Table
- ☐ Aquifuge



The intrusive rock is also known as *

- ☐ sediments
- ☒ plutonic rocks
- ☐ volcanic rocks
- ☐ molasse

Find out the correct statements about their toxicity? a) Methanol, b) Parathion, c) Phthalate esters, d) Dimethylnitrosamine *

- ☐ a) Inhibits acetylcholinesterase b) Carcinogen; c) Affects optic nerve leading to blindness; d) Very widespread
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Find out correct phenomena associated with the following toxic pollutants; a) Carbon monoxide; b) Toluene; c) Aniline; d) Nerve gas *

- ☐ a) Methemoglobin; b) Acetylcholinesterase activity; c) Hemoglobin adduct; d) Hippuric acid
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A sample of a colored analyte at a concentration of 3.60×10^{-3} mol/L shows 34.2 percent transmittance in a 2.00 cm cell. What is the value of "a" in the Beer's law equation for this substance at the wavelength measured? *

- ☒ 64.6 L mol⁻¹cm⁻¹
- ☐ 32.8 L mol⁻¹cm⁻¹
- ☐ 6.46 L mol⁻¹cm⁻¹
- ☐ 12.2 L mol⁻¹cm⁻¹

Conservative Margins are known as *

- ☒ Transformation Faults
- ☐ Destructive Plate Boundary
- ☐ Ocean Floor
- ☐ John Tuzo Wilson

In normal silicates, each Si atom is surrounded by *

- ☐ five oxygens atoms in trigonal bipyramidal geometry
- ☐ four oxygen atoms in square planar geometry
- ☐ six oxygen atoms in octahderal geometry
- ☒ four oxygen atoms in tetrahedral geometry



For each mineral provide the correct arrangements. a) Talc; b) Chrysotile; c) Tremolite; d) Quartz *

- ☐ a) Sheet; b) Double chain; c) Chain; d) Three-dimensional array
- ☒ a) Sheet; b) Chain; c) Double Chain; d) Three-dimensional array
- ☐ a) Chain; b) Sheet; c) Double Chain; d) Three-dimesional array
- ☐ a) Chain; b) Double Chain; c) Three-dimensional array; d) Sheet

Biomass is a very heterogeneous and chemically complex renewable resource, with a range of chemical compositions as shown below *

- ☐ Carbohydrates
- ☐ Secondary metabolites
- ☐ Lignocellulosic fibers
- ☒ All the above
- ☐ Only 1 and 3

The major product of Hemicellulose is *

- ☐ Phenols
- ☐ Glucose
- ☐ Mannose
- ☒ Xylose



The process in which the cellulose produces its glucose monomers is known as *

- ☐ hydrolysis
- ☒ saccharification
- ☐ pyrolysis
- ☐ Torrefaction

The following thermochemical platform of biomass produces the liquid, solid, and gaseous fuels *

- ☒ Pyrolysis
- ☐ Gasification
- ☐ Hydrolysis
- ☐ Options 2 and 3

Vegetable oils belong to the following generation of the feedstock *

- ☐ First generation
- ☒ Second generation
- ☐ Third generation
- ☐ Fourth generation



Cellulose usually exists as long thread-like fibers called microfibrils with the monomeric units of anhydro-d-glucose units with *

- ☒ Beta- glycosidic linkage
- ☐ Alpha- glycosidic linkage
- ☐ Both

The cross linking glucans are present in *

- ☐ Cellulose
- ☐ Lignins
- ☒ Hemicellulose
- ☐ Secondary metabolites

The phenylpropanoid subunit is present in *

- ☐ Cellulose
- ☐ Hemicellulose
- ☐ Vegetable oils
- ☒ Lignin



Torrefaction is a process where following occur *

- ☐ decomposition of hemicellulose coupled with depolymerization of cellulose
- ☐ thermal softening of lignin
- ☐ the orientation of microfibrils is displaced
- ☒ all the above
- ☐ options 2 and 3

The following type of linkages are common in the Lignin *

- ☒ • β -O-4
- ☐ • α -O-4
- ☐ • β - β
- ☐ • α - α

HMF and levulinic acid are obtained from the following *

- ☐ Hemicellulose
- ☐ Lignins
- ☒ Cellulose
- ☐ Natural products



Depolymerization of lignin provides *

- ☐ Biogas
- ☐ Biooils
- ☒ Phenols
- ☐ Xylose

Which of the following biomass is hydrophobic in nature *

- ☒ Lignins
- ☐ Cellulose
- ☐ Secondary metabolites
- ☐ All the above

Guaiacyl units of the Lignins are present *

- ☒ In both soft and hard woods
- ☐ Only the hard wood
- ☐ Only the soft wood



Which of the following biomass provides C1 to C6 platform chemicals *

- ☐ Lignins
- ☐ Hemicellulose
- ☒ Cellulose
- ☐ Vegetable oils

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