

Debre Markos University
College of Natural and Computational science
Department of Chemistry

Industrial chemistry II (chem.451) Assignment for Regular 3rd year Chemistry Students (40%)

1. Explain the following physic-chemical processes of coal (3pt)
 - a. Coal carbonization
 - b. Coal gasification
 - c. Coal hydrogenation
2. What is the role of catalysts and oxidizing agents in the manufacture of petrochemicals and their derivatives? Cite examples? (3pt)
3. Describe the following synthetic methods of phenol (include reaction equation)? (3pt)
 - a. Oxidation of toluene
 - b. Fusion of benzene sulfonate with sodium hydroxide
 - c. Heating chlorobenzene with sodium hydroxide
4. Describe using suitable examples the difference between addition and condensation polymerisation. Name an example of a commercially important polymer produced by each method? (2pt)
5. Predict the monomer from the polymers given below? (4pt)
 - 1.
 - 2.
 - 3.
 - 4.
6. Explain the basic process that sugar production from sugar cane should pass? (3pt)
7. Explain the difference b/n soaps and detergents? (2pt)

8. Write the chemical structure of lignins: **(3pts)**

trans-coniferol,

trans-sinapol and

trans-p-coumarol

1. Describe the role of fermentation in the preparation of chocolate. **(3pts)**

2. Using block diagram, show how penicillin is recovered by solvent extraction method? **(3pts)**

3. **What are systemic pesticides? (2pts)**

4. **What is genuine leather? (2pts)**

5. **What are the basic ingredients of plant and animal fibers? (2pts)**

i) **Animal fiber** -----

ii) **Plant fiber**-----

6. **List the characteristics of well tanned leather.(2pts)**

i) -----

ii) -----

iii) -----

iv) -----

7. **Mention the environmental impacts of extensive pesticide use.(2pts)**

i) -----

ii) -----

iii) -----

iv) -----