Questions for Final Exam (Chemical Engineering BSc)

I. Physical Chemistry


4. **Chemical equilibrium**: The free energy profile of chemical reactions. Chemical potential. Characterization of chemical equilibria, various types of reaction quotients and equilibrium constants. External influences on equilibria. Equilibria in chemical systems.


6. **Fundamental of reaction kinetics**: The concepts of reaction rate and rate law. Thermal activation and the temperature dependence of the rate coefficient. The information content of the activation energy and the pre-exponential factor.


II. Unit Operations


III. Chemical Technology


5. Aluminum and iron production: Alumina production according to Bayer, the electrolysis of alumina. Occurrence of iron, ores, ore substitutes. The types of iron, the blast furnace operation.


7. Motor fuels: The atmospheric distillation of crude oil and products. Properties of high-quality gasoline and diesel, octane number, cetane number.

8. Lubricants: Vacuum distillation of atmospheric residue, lubricant types, the manufacture, uses.


10. Aromatic raw materials and production. BTX fraction and its products.