<u>Final Exam</u>

Questions of Fluid Mechanics

- 1. Describe the basic equations of hydrostatics, the definition of pressure, characteristics and the units of it!
- 2. Describe the applications of hydrostatics in the following cases: force acting on a dam, pressure function of the atmosphere, rotating centrifuge etc!
- 3. Describe the continuity law at constant and variable density! Present application examples (with variable cross-section tubing, compressor, etc.)
- 4. Describe the Bernoulli's equation, applications, limitations! Describe applications (siphon, Venturi tube, containment of spillage, etc.).
- 5. Describe the principle operation of centrifugal fans and the Euler turbine equation!
- 6. Describe the theoretical and actual curves of centrifugal fans and pumps, and types of losses, and reasons!
- 7. Describe the flows with losses in straight pipeline describe the evolution of the pipe friction factor for laminar and turbulent province!
- 8. Show the Moody diagram and explain the features included in (Re, λ , k, d etc) and use!
- 9. Describe the onset of flow losses in fittings, measurement and calculation methods!
- 10. Describe some of the pressure measurement devices! Principles of structural design and operation!
- 11. Show the flow losses calculation in a ventilation system with given geometry and flow characteristics (the straight pipes, fittings) using a catalog!
- 12. Show the choice of a ventilator (fan) from a catalog! The parameters are given of the fan!