**Questions for examination**

Theoretical questions (2 questions)



 21. Variational inequalities.

 22. Inverse problems. Idea.

Practical questions (1 question)

1. Extremum of functions and stationary condition.
2. Lagrange problem and Euler equation
3. Lagrange problem with many unknown functions
4. Lagrange problem with high derivatives of unknown function
5. Variational problem with unknown function of many variables and Ostrogradsky equation
6. Bolza problem and transversality condition
7. Variational problem with isoperimetric condition
8. Variational problem with pointwise condition
9. Optimization control problem and maximum principle, iterative method
10. Optimization control problem with fixed final state, iterative method