**EXAM TOPICS**

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| **Module 1. RANS** | |
| 1 | The nature of turbulent flows |
| 2 | Averaging procedure for Navier-Stokes equation |
| 3 | Local similarity principle in turbulent transport theory |
| 4 | Equations for Reynolds Stress Velocity |
| 5 | Semi-empirical relations and hypotheses  closures for the equation of second moments |
| 6 | Pulsation structure of turbulent  flows in a homogeneous medium |
| 7 | Influence of Archimedean forces on the structure of turbulence |
| 8 | Pulsation structure of turbulent flows in a stratified environment |
| 9 | Influence of temperature and concentration on  the structure of turbulent flow |
| 10 | Pulsation structure of turbulent transverse flows of the conducting liquid magnetic field |
| 11 | Pulsation structure of turbulent flows in a curved domain |
| 12 | Pulsation structure of turbulent admixture transfer in curved domain |
| 13 | The influence of rotation, stratification, and magnetic fields on turbulence |
| 14 | The influence of magnetic fields the MHD equations |
| 15 | Turbulence total energy balance |