Physics. Topics for the admissions test and the interview: medicine

Recommended literature: Giancoli D.C.: Physics. Principles with applications / Kirk T.: Physics for the IB diploma. / Tsokos K.A.: Physics of the IB diploma.

1. Scalar and vector physical quantities, SI system of units.

2. Velocity and acceleration. Uniform motion and uniformly accelerated motion.

3. Force, mass, and weight. Newton's laws of motion.

4. Work, kinetic energy, potential energy, power. Energy transformations. Conservation of energy.

5. Temperature, heat, and internal energy. Thermal equilibrium, calorimetry. Specific heat and latent heat. First law of thermodynamics.

6. Pressure. Hydrostatic pressure, Pascal’s principle, Archimedes' principle, buoyant force.

7. Electrostatics. Electric charge, electric field, field lines. Coulomb’s law.

8. Electric current, voltage. Ohm’s law, electric resistance.

9. Magnets and magnetic fields. Magnetic induction. Current as a source of magnetic field.

10. Mechanical and electromagnetic waves; wavelength, period, frequency, speed of wave. Electromagnetic spectrum.

11. Geometric optics. Law of reflection and refraction. Index of refraction. Images in lenses, focal point, focal length, optical power, lens equation.

12. Atomic nucleus. Natural radioactivity: alpha, beta, and gamma decay. The radioactive decay law; the radioactive half-life.

13. Photon theory of light, photon energy. Atomic spectra, energy levels, transitions, absorption, and emission.