Possible questions for test 2
(note that all problems are being discussed in the class)

- Four small spheres arranged at the vertices of the square with
side a. Calculate total momentum of inertial with respect to
different axes of rotation.

- calculate the torque for the given position vector and applied force on the point object.

- problem of grinding wheel   coming to a stop when the circuit breaker trips. Requiring to calculate
the time when it stops, angular acceleration and total angle of rotation.

- Problem of a disk falling on a turnable with given initial angular velocity,
requiring to calculate final angular velocity and final rotational kinetic energy

- problem of particle with given mass moving by circle with given radius.
  Requiring to calculate the torque and angular displacement through the number of rotation.

- calculating escape velocity of satellite on the orbit

- calculating force constant of spring with given mass of attached particle and the period of
  oscillation.

- calculate the mass of the planet for given acceleration on the surface

- calculate the period of rotation of satellite around the planet if the distance between planet and
the satellite is given
as well as given masses of planet and the satellite.

- for the given equation of motion of a mass attached to the spring, calculate its period,
amplitude, frequency,
maximal velocity and acceleration as well as total mechanical energy

- discuss a pendulum (or swing). For a given initial position of the pendulum, calculate potential
energy of the object connected to
the pendulum, calculate maximal velocity and acceleration of the object as well as its total
mechanical energy.
Calculate also the period, amplitude and phase of the oscillation.

- for the given wave function of the harmonic wave, calculate wavelength, direction of
propagation frequency and period of the wave.
Calculate also speed of the wave propagation as well as its energy.