

## I QUIZ

1. Which statement correctly describes Gibbs energy of the system?
  - A. Gibbs energy is equal to the difference of enthalpy and entropy.
  - B. Gibbs energy is a state function of the system which defines the direction of the process.
  - C. For reversible processes Gibbs energy is maximal.
  - D. Gibbs energy which is spent for the transport of particles with total mass 1 g is named chemical potential.
2. The acoustic impedance of the medium:
  - A. is equal for all liquids regardless on their density.
  - B. is the cause of the exponential decay of sound wave intensity along its path through that medium.
  - C. is equal to the product of medium density and the speed of sound in it.
  - D. is equal to the product of medium density and acoustic pressure.
3. On harmonic oscillator which oscillates in viscous medium starts to act external harmonic force. Which statement describes with accuracy that situation?
  - A. Harmonic oscillator will at the same moment start to oscillate with the frequency of external force.
  - B. The amplitude of oscillation will be maximal when the frequency of external force becomes equal to the attenuation coefficient.
  - C. The resonant frequency of the oscillator depends only on the attenuation coefficient.
  - D. Maximal energy delivery to the oscillator will be achieved when the frequency of external force becomes equal to the resonant frequency of the oscillator.
4. Model of real liquid takes into account:
  - A. the low friction between the liquid and the tube wall.
  - B. that the force between layers of liquid depends on their tangential surface.
  - C. that the concentration gradient is perpendicular to the direction of flow.
  - D. that the pressure difference at the ends of the tube is inversely proportional to the viscosity of the liquid.
5. What is **NOT** correct for ideal liquids?
  - A. The volume flow rate is constant.
  - B. The total pressure in the flowing liquid is equal to the sum of hydraulic and hydrostatic pressure.
  - C. The liquid freely slips across the tube wall.
  - D. All layers of the liquid are moving with the same speed.
6. The body immersed into has the buoyancy equal to 1/3 of its weight in the air. Which answer is correct?
  - A. The density of the body is 3 times less than the density of the liquid.
  - B. The density of the body is 3 times larger than the density of the liquid.
  - C. The density of the body is 2/3 of the density of the liquid.
  - D. The density of the body is 1/3 of the density of the liquid.

7. Temporal change of electric field and magnetic field in some point of the electromagnetic field is presented by:
- A. exponential function.
  - B. sine function.
  - C. linear function.
  - D. logarithmic function.
8. Maxwell's model describes the behavior of viscoelastic materials. Which statement is correct?
- A. Maxwell's model is a parallel combination of the spring and dashpot.
  - B. For very short action of external force, Maxwell's model describes only elastic properties while for the prolonged action the model describes plastic properties of the material.
  - C. For very short action of external force, Maxwell's model describes properties of plastic flow.
  - D. Maxwell's model is adequate for the joint performance.
9. Forces acting on levers in our body are: weight force, and muscle force. What relation between them defines lever efficiency?
- A. The ratio of muscle force and weight force.
  - B. The product of muscle force and weight force.
  - C. The ratio of the speed of muscle contraction and speed of lifting the weight.
  - D. The product of the speed of muscle contraction and speed of lifting the weight.