Assignment 10

1. A cube of length 10 cm is used to measure the density of a liquid. The density of the liquid is assumed to be 7800 kg/m³. Assuming the efficiency of the process to be 1, calculate the density of the liquid.

1) \( \rho = \frac{m}{V} \)

2. The following equation correctly describes the current through a wire where [a] is the electrical conductivity and [β] is the electronic parameter.

\[ I = \frac{V}{\alpha + \beta} \]

3. Which of the following statements are correct regarding the modeling of the metal transfer process? (Select all correct.)

*a.* Positive current leads to deposition, while negative current leads to penetration.
*b.* Positive current leads to penetration, while negative current leads to deposition.
*c.* Both positive and negative current leads to metal deposition.
*d.* Both positive and negative current leads to penetration.

4. Which of the following statements are correct regarding the determination of the current distribution in a wire? (Select all correct.)

*a.* Only current continuity equation is solved.
*b.* Only magnetic field equation is solved.
*c.* Only mass conservation equation is solved.
*d.* Only current continuity and magnetic field equations are solved.

5. Which of the following statements are correct regarding the modeling of the metal transfer process? (Select all correct.)

*a.* The metal donor can be further divided into subdomains.
*b.* The current continuity equation is solved.
*c.* The magnetic field equation is solved.
*d.* Both current continuity and magnetic field equations are solved.

6. Consider the following statements. (Select all correct.)

*a.* The wire and the metal donor are depicted through the interface factors conditions.
*b.* The volume of the solid is defined in the metal donor to hold the moving two surface of the electron, droplet, and weld pool with low boundary conditions

7. Which of the following statements are correct regarding the modeling of the metal transfer process? (Select all correct.)

*a.* Only current continuity equation is solved.
*b.* Only magnetic field equation is solved.
*c.* Only mass conservation equation is solved.
*d.* Both current continuity and magnetic field equations are solved.

8. Which of the following statements are correct regarding the modeling of the metal transfer process? (Select all correct.)

*a.* Only current continuity equation is solved.
*b.* Only magnetic field equation is solved.
*c.* Only mass conservation equation is solved.
*d.* Both current continuity and magnetic field equations are solved.

9. Which of the following statements are correct regarding the modeling of the metal transfer process? (Select all correct.)

*a.* Only current continuity equation is solved.
*b.* Only magnetic field equation is solved.
*c.* Only mass conservation equation is solved.
*d.* Both current continuity and magnetic field equations are solved.

10. Which of the following statements are correct regarding the metal transfer process? (Select all correct.)

*a.* Only heat transfer is taking place.
*b.* Only friction is occurring.
*c.* Only heat transfer and mass flow is taking place.
*d.* Both heat transfer and mass flow is taking place.

11. Which of the following statements are correct regarding the modeling of the metal transfer process? (Select all correct.)

*a.* Only current continuity equation is solved.
*b.* Only magnetic field equation is solved.
*c.* Only mass conservation equation is solved.
*d.* Both current continuity and magnetic field equations are solved.

12. Which of the following statements are correct regarding the modeling of the metal transfer process? (Select all correct.)

*a.* Only current continuity equation is solved.
*b.* Only magnetic field equation is solved.
*c.* Only mass conservation equation is solved.
*d.* Both current continuity and magnetic field equations are solved.