Assignment 5

The data in the table quantify the assignment forces. Use the data to complete the assignment.

In Buckingham II's theorem, the number of repeating symbols indicate the number of fundamental dimensions.

1. a. u, m, c, m⁻¹, d, m⁻¹
   b. u, m, c, m⁻¹, d, m⁻¹
   c. u, m, c, m⁻¹, d, m⁻¹
   d. None of these

2. The ratio of inertial force to viscous force is called ________
   a. Reynolds Number
   b. Froude Number
   c. Mach Number
   d. Euler Number

3. The square root of the ratio of inertial force to gravitational force is called ________
   a. Reynolds Number
   b. Froude Number
   c. Mach Number
   d. Euler Number

4. The Chezy formula for velocity V in an open channel is given by V = Q / C, where C is the hydraulic radius, R is the channel width and V is the Chezy coefficient. Find the dimensions of C. ____________
   a. L<sup>2</sup>/L<sup>-1</sup>
   b. L<sup>-1</sup>/L<sup>-1</sup>
   c. L<sup>-1</sup>/L<sup>-1</sup>
   d. L<sup>-1</sup>/L<sup>-1</sup>

5. When there is a direct action of gravity, ________ number similarity is used.
   a. Reynolds
   b. Froude
   c. Mach
   d. Euler

6. For Froude number, the discharge ratio is ________
   a. Froude<sup>2</sup>
   b. Froude<sup>0</sup>
   c. Froude<sup>-1</sup>
   d. Froude<sup>-2</sup>

7. Velocity of a jet being emitted from a nozzel is ________
   a. Constant
   b. Linear
   c. Exponential
   d. All of these

8. If a 1:10 model of a submersible discharge is 0.5 m³/s, the corresponding discharge in m³/s is ________
   a. 5.00
   b. 50.00
   c. 5.00
   d. 50.00

9. The ratio of inertial force to gravitational force is called ________
   a. Reynolds Number
   b. Froude Number
   c. Mach Number
   d. Euler Number

10. The slope of the ratio of inertial force to gravitational force is ________
    a. Reynolds Number
    b. Froude Number
    c. Mach Number
    d. Euler Number