I. [3 Points and 10 minutes] Could you please answer true or false the following:

1. At the steady state of any liquid, its velocity is greater than t critical velocity.

2. The decay modulus of the radioactive matter is T^{-2}.

3. The decay constant of a radioactive element is directly with its half life time.

4. The decay constant of a radioactive element depends on the age of the nucleus.

5. The fundamental intervals divided into 100, 80, and 180 parts in Celsuis, Fahrenheit, and Reaumur scale, respectively.

6. Skin temperature easily determined by clinical thermometer.

II. . [2 Points and 10 minutes] Write down the scientific word of the following:

1. It is deper on the surface area of the liquid, the distance away from the static layer and the velocity with respect to the static layer.

2. It cannot give you the numerical value of constants of proportionality that may appear in an algebraic expression.

3. It is the ratio between the lateral contractions per original diameter and the longitudinal extension per original of any material.

4. In the elastic region the stress is directly proportional to the strain.

III. [10 points and 30 minutes] Choose the correct answer and could you please give a reason of the following:

1. A particle moves in a circular path of radius *r* with speed *v*. If increases its speed to 2*v* while traveling along the same circular path. The centripetal acceleration of the particle has changed by a factor of

(a) 0.25 (b) 0.5 (c) 2
(d) 4 (e) impossible to determine.

2. Which of the following equations are dimensionally correct?

a- $V_f = V_i + ax$
b- $Y = (2m)\cos(kx)$, where $k = 2m^{-1}$
c- $Y = A \sin wt + B \tan wt + C \sin wt$.