TEST QUESTIONS.

Norg.-The student should base his answer upon what he has learned, and not allow himself to be misled by the form of the question.

1.—Carefully distinguish from one another: (1) an observed fact; (2) a law of nature; (3) a theory.

2.-Classify, under the foregoing headings, the following statements :-

- (1) The volume of a given body of gas, if the temperature is constant, varies inversely as the pressure.
 - (2) If the temperature of a litre of air at 0°C. is raised to 1°C. while the pressure remains constant, the volume is increased to $\frac{274}{273}$ of a litre.
- (3) The temperature of a substance depends upon the average kinetic energy of each molecule.
- (4) If the E. M. F. remains constant, the strength of an electric current varies inversely as the resistance of the whole circuit.
- (5) At constant pressure, the volume of a gas varies as the absolute femperature.
- (6) That which we call heat is molecular kinetic energy.
- (7) If a litre of air measured under a pressure of one atmosphere is subjected to a pressure of two atmospheres, while the temperature remains constant, the volume is reduced one half litre.
- (8) Equal volumes of any two gases at the same pressure and temperature contain the same number of molecules.
- (9) If a pressure of p lbs. per square inch is communicated to any part of the surface of a fluid, the pressure at all points in the fluid is thereby increased by p lbs. per square inch.

3.—A coil of glass tubing, after being suspended for a year, became permanently stretched. What property does this phenomenon show glass to possess?

4.—One man holds one end of a rope in his hands, and another man pulls the other end of the rope with a force of 90 lbs. What force does the latter compel the former to exert in order to retain the rope in his hands?

5.—Two men at opposite extremities of a rope pull each with a force of 100 lbs. What is the force exerted between them, or the tension of the rope?

6.- What force is necessary to separate a pair of Magdeburg hemispheres from which the air has been entirely exhausted, and whose diameter is five inches?

7.—What force would be necessary to separate the above hemispheres at a place where the barometrical column is 20 inches?

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