PHYSICS, CHEMISTRY AND POLYCON EXAMS

Questions Given At Previous Midyears Published Below.

1. Define or explain the following terms:
   (a) Free goods.
   (b) Capital.
   (c) Sterling exchange.
   (d) Favorable balance of trade.
   (e) Real wages.

2. Distinguish between productive and unproductive labor, and give an example of each kind.

3. Explain what is meant by the statement that "the maintenance of capital, as well as its creation, involves a". What are the three important advantages of the corporate form of organization?

4. Arrange the following items in their proper order as they would appear in the statement of a national bank. What criticisms would a bank examiner make? Would these criticisms vary if the bank was situated in New York, Boston, or the town of Lexington?

Loans $140,000
Capital 50,000
Cash 40,000
Real Estate 25,000
Deposits 150,000
Undivided profits 5,000
Notes 40,000
Due from Reserve Agents 40,000
U.S. bonds 50,000
Surplus 2,000

5. Give the three best arguments for a protective tariff, and state how they are answered by the free-trader.

6. Give four examples of modern steel construction and design.

7. Explain the principle of absoluteness of temperature. How closely can a temperature of 1000 degrees be measured? How accurately is the Centigrade temperature of 1000 degrees known?

8. What is meant by a gas thermometer? Explain fully, if so or not. Is it a more suitable gas for filling a standard gas thermometer than carbon dioxide? Give reasons.

9. What is the "cold junction" of a pyrometer, and how does it affect the temperature of the object measured?

10. What general is the 5th class of heat insulation used? What is the nature of the resistance to heat in a 5th class door?

11. Explain fully the method of measuring: (1) the melting point of copper, and (2) the boiling point of liquid air.

12. Describe a method of measuring and comparing the coefficient of expansion of a solid.

13. Explain why solid snow is formed when liquid carbon dioxide in a tank under a pressure of 1000 lbs. per sq. in. and a temperature of 30 degrees C. is allowed to escape freely into the air.

14. Explain the principle of operation of some freezing machine.

Sophomore Physics.

1. Under what circumstances do uniform motion and uniformly accelerated motion occur? What is simple harmonic motion and how can it be produced?

2. State the conditions for equilibrium. What are sympathetic vibrations, and how caused?

3. A picture weighing 38 pounds (Continued on Page Four)

CONSTRUCTION OF THE CUSTOM HOUSE TOWER

Architects Addressed By Designer And Engineer At Union Last Friday.

The Architectural and Architectural Engineering Societies held a combined smoker in the Union last Friday evening, at which talks were given on the construction of the new Customs House. Mr. W. C. Apfelton took up the architectural side. He told how the idea of building on to the old customs house originated in Washington and showed one of the first sketches submitted to the committee in charge. The building weighs twenty-three thousand tons and, since such a large weight rests upon a small area, it was necessary to go down one hundred feet below firm enough ground was reached for foundations, which consist of four cement caissons. The Crime of the old building was retained to add to the beauty and Mr. Apfelton told about the clock and cupola. The face of the clock is cement and the minute hands are bronze. Only the tips of the hands are illuminated.

Mr. C. M. Reidy then took up the engineering problems encountered in the construction. He told more in detail about the caissons, pilings, wind stresses and supports over the dome. That the building is now only three-quarters of an inch out of plumb, which for its size, is considered very remarkable, was due to the rigid examination of each day's work.

The progress made was gone over at the end of the day to see if the building was going up along its intended lines and to see if everything was absolutely right. The smoke stack runs up inside the building into the cupola, which is so high that it affords a very strong draft. There are only three buildings in this country higher than the Customs House, the Woolworth Building and the Metropolitan Tower in New York, and the Smith Building in Seattle.

Mr. Reidy considered the building a fine example of modern steel construction and design. After the talks, blue prints were examined by the students and refreshments were served in the side room. In maintaining an exclusive foot-wear standard we appeal directly to the discriminating man who demands that his shoes reflect the newest style, combined with absolute comfort and serviceability.

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