

University of the State of New York.

37TH ACADEMIC EXAMINATION.

SOLID GEOMETRY.

MONDAY, March 3, 1890—Time, 1:30 to 4:30 P. M., only.

36 credits, necessary to pass, 27.

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| 1. When are two planes parallel?..... | 1 |
| 2. Define dihedral angle; prism; cube; slant height of a regular pyramid; cylinder; conical surface; sphere..... | 7 |
| 3. Distinguish between similar, equal, and equivalent polyhedrons | 3 |
| 4. Write theorems including and completing the following conditions: | |
| (a) If two planes be perpendicular to each other..... | 1 |
| (b) If a plane bisect a dihedral angle..... | 1 |
| (c) If a prism be cut by two parallel planes..... | 1 |
| (d) If a pyramid be cut by a plane parallel to its base.. | 2 |
| 5. Prove that if a straight line and a plane be perpendicular to the same straight line they are parallel..... | 2 |
| 6. Prove that the volume of any prism is measured by the product of its base and altitude..... | 3 |
| 7. Prove that any triangular prism may be divided into three equivalent triangular pyramids..... | 4 |
| 8. Prove that every section of a sphere made by a plane is a circle | 4 |
| 9. Give formulas for finding each of the following: lateral area of a cylinder; volume of a cone; area of a sphere; surface of a sphere | 4 |
| 10. Find the entire surface of a right prism whose altitude is 16 feet and whose base is an equilateral triangle each side of which is 6 feet..... | 3 |