

University of the State of New York

38TH ACADEMIC EXAMINATION

SOLID GEOMETRY

MONDAY, June 9, 1890—Time, 1:45 to 5 P. M., only

32 credits, necessary to pass, 24

1. Define polyhedral angles; parallelopiped; truncated prism; cone; sphere; icosahedron; diagonal of a polyhedron 7
2. Mention four distinct sets of conditions which determine the position of a plane..... 4
3. Prove that the sum of any two of the plane angles formed by the edges of a trihedral angle is greater than the third 3
4. In any prism the sections made by parallel planes are polygons equal in all their parts..... 2
5. Prove that similar pyramids are to each other as the cubes of their homologous edges..... 3
6. Prove that any plane perpendicular to the radius of a sphere at its outer extremity is tangent to the sphere at that point..... 3
7. Give formulas for finding the following: (a) Convex surface and (b) volume of a cone. (c) Volume of any pyramid. (d) Volume of a frustum of a cone. 4
8. The circumference of a dome in the shape of a hemisphere is 66 feet; how many square feet of lead are required to cover it. 3
9. Given a pyramid whose volume is 512 cubic feet and altitude 8 feet; find the volume of a similar pyramid whose altitude is 12 feet and find also the area of the bases of each..... 3