

$$\bar{f} = \frac{\sum (mf)}{\sum (m)}; \text{ proved from } \bar{x} = \frac{\sum (mx)}{\sum (m)} \text{ Chap. XI.}$$

Laws of motion and parallelogram of velocities. Chapter XII. Motion down a smooth curve,  $v^2 = 2gh$ , without proof,

except for an inclined plane. The pendulum  $t = \pi \sqrt{\frac{l}{g}}$  without proof. Second's pendulum. See chapter XII, § 147, 152.

Centrifugal force  $= \frac{v^2}{r}$ , proved differently from Chapter XIV, § 163. Gravity the resultant of the earth's attraction and centrifugal force.

Work.—Chapter XVII; also (*Tracts on Mechanics, Part I.*) omitting calculation for fly-wheel, § 24, and calculations of Moments of Inertia, § 28. Moment of Inertia and radius of gyration to be learnt for simple cases of rectangle and circle; also the formula  $M((h^2 + k^2))$ , without proof. Special attention to Example 16.

Marks—December, 200; June, 350.

*Applied Mechanics—(Crofton's Lectures)*

Introductory Chapter: Stability of Structures (Part I.) Frames. Roofs. Trussed beams. Chains and cords. Stability of walls.

Strength of Material (Parts II.) Stress and strain. Elasticity. Resistance to compression. Theory of beams. Bending moment expressed by the area of the diagram for shearing force. Culman's graphical method of treating stresses and finding centres of gravity. Moment of resistance for rectangular and cylindrical beams. Girders. Beams of uniform strength. Warren girder and lattice girder with diagrams. Method of sections. Partial loading. Allowance for weight of beams. Dead and live load. Sloping beams. Fixed beams.

Marks, June, 350.

Notes and recitations ..... 100

Introductory Chapter.

## 2ND CLASS.

VOLUNTARY.—2,000 MARKS.

Qualification, one-third for any Section.

## SECTION N.

*Integral Calculus (Williamson).*

Chapter I—Compare (e) with § 9; (f) with § 5; also Ex.