ROYAL MILITARY COLLEGE OF CANADA.

SYLLABUS OF MATHEMATICS AND MECHANICS, TOTAL MARKS, 12,000.

4TH CLASS—(OBLIGATORY)—TOTAL, 1,500 MARKS.

Arithmetic to Interest, Discount, Stocks, Proportional parts and extraction of square root and cube root. (*Printed notes and other authorized text books.*) *Dec., Mks.* 300.

Euclid (*Todhunter*) to Book II; III; IV.....
Algebraical explanations will also be given of the propositions in Book II:
Marks—December, 100; *April*, 100; *June*, 200.

Algebra (*Todhunter's, for beginners, and printed notes*) to Quadratics and Evolution, *Dec.;* to Progressions, *April;* to Permutations and Combinations, Binomial Theorem and Interest, omitting scales of Notation and the harder examples in Quadratics. Chapters I to XXXII; to XL; to end.....Marks, 100, 100, 200.

Plane Trigonometry (*Todhunter and lectures or printed notes.*) (1st). Initial line. Terminal line. Angles of any size. The rules of signs. Trigonometrical ratios. Reasons for their names. Elementary formulæ proved from definition. Formulæ connecting each with every other. Constructions of angles when the ratios are given, also by the table of chords. Changes of the ratios in sign and magnitude. Circular measure. Logarithms. Chaps. I to V, omitting § 5–9; proof of § 14; proof of § 51, 53; § 66–75, *Dec.* Formulæ of two angles. Chap. VI, omitting § 79, 80. Chap. VII, § 95, 98. The angles 18°, 36°, 54°, 72°. Chap. VIII, § 107–9, and note process of 183. Relation of $\sin\theta : \theta : \tan\theta$, Chap. IX, § 116–18. Complete use of Logarithms and the Natural Tables, *April.* Solution of triangles, Chap. XIII, XIV, omitting alternative methods § 231, 2, 7, and § 219–221, 238.
Marks—Dec., 50; *April*, 50; *June*, 200.

Notes and Recitations.....*Marks*, 100.

4TH CLASS—(VOLUNTARY)—TOTAL, 500 MARKS.

Qualification, one third for any section.

SECTION *A.—Euclid* III, IV. *Algebra*, (*Todhunter's, for beginners, and printed notes.*) Quadratics, Evolutions, Indices, Surds, Ratio Proportion and Variation, Progressions, Permutations and Combinations, Binomial Theorem, Interest.

Plane Trigonometry.—Formulæ of two angles; Ratios for 15°, 18°, &c. Solution of triangles. *Chapters* VI to XIV, with the same omissions as in the obligatory course.....*Marks—Dec.*, 100.

SECTION *B.—Euclid.* Definition of Book V explained Algebraically; Book VI, omitting Props. XXVIII to XXIX, and the first proof of XXX....*Marks—April*, 100.

SECTION *C.—Algebra* (*Todhunter*). Equations, *Chap.* XII; XIII; XIV. Anomalous forms XV to § 206. Indices XVIII to § 265, and proof of $(a^m)^n = a^{mn}$. Surds XIX, omitting § 296–8 and 307 to end. Quadratics XX to XXIV with special attention to XXII. Imaginary expressions XXV to §364, and read over the rest of the Chapter. Ratio, Proportion and Variation; practical applications, only XXVI to XXVIII. Logarithms XXXVIII; XXXIX, omitting § 549, and only reading over § 551.....*Marks—April*, 100.

SECTION *D.—Plane Trigonometry* (*Todhunter.*) *Chapters* I to XVI, omitting XII.....*Marks—June*, 100.

SECTION *E.—Conics and Analytical Geometry of two dimensions* (*Todhunter.*) Straight line, *Chapter* I to III, omitting § 27, 37, 48; examples 1 to 21. Change of co-ordinates, practical examples only *Chapter* V. Circle. *Chapter* VI to § 99.
Marks—June, 100.