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MATHEMATICS

ARITHMETIC—Paper B.

FRIDAY, 12th JUNE.—Morning, 10.45 a.m. to 12.15 p.m.

Each item (a), (b), (c), (d), (e), (f) in Section I will be counted as a *half-question*. The total number of questions answered should not exceed *five*, every pair of items from Section I. being counted as a whole question.

(Candidates should see that answers to questions in excess of *five* are cancelled).

Mathematical Tables may be obtained from the Superintendent.

Section I.

(Each item (a), (b), (c), (d), (e), (f) in this Section carries 13 marks).

(a) Find the simplest value of :
$$11\tfrac{1}{4} - 1\tfrac{3}{5} \times 1\tfrac{1}{16} + 1\tfrac{2}{5} \text{ of } (5\tfrac{4}{7} - 2\tfrac{3}{4}).$$

(b) Multiply £368 17s. 8½d. by 29²⁄₇.

(c) Express £7 17s. 10d. as a decimal of £5, giving the result correct to three significant figures.

(d) Calculate, to two places of decimals, the value of
$$\sqrt{136\cdot217}.$$

(e) A margin, one inch wide all round, was removed from a rectangular sheet of paper 17 inches long and 11 inches wide : what percentage of the paper was in the margin ?

(f) Calculate, correct to the nearest penny, the Simple Interest on £364 15s. 8d. for 6 years at $3\tfrac{1}{2}\%$ per annum.

40

SECTION II.

[Each question in this Section carries 32 marks].

1. Evaluate, correct to *four* significant figures :

$$\frac{437 \cdot 853 \times 64 \cdot 9285}{(7 \cdot 8913)^2}$$

2. Two fields, one a square and the other a rectangle whose length is double its width, have each an area of 10 acres : find, to the nearest yard, the difference between the perimeters of the two fields.

3. The rent of a rectangular plot of ground 38·1 metres in length and 7·9 metres in width is 355 francs : express that rent in £s. per acre, giving the result correct to the nearest shilling.

[£1 = 124 francs.]

4. Goods purchased were re-sold : half the quantity at a profit of 10%, one-third at a loss of 15% and the remainder at a profit such that the total receipts represented a gain of $5\frac{5}{8}\%$ on the purchase price. Find the percentage profit realised on the last portion of the goods.

5. Copper and tin weigh 8·9 grammes and 7·3 grammes respectively per cubic centimetre and a certain alloy of those two metals weighs 7·8 grammes per cubic centimetre. Find (i) the volume and (ii) the weight of copper and of tin in 16 cubic centimetres of the alloy.

6. Find the volume of a cylinder whose height is equal to the diameter of the base and whose whole surface area is 150 sq. inches.

[See Tables for Formulæ].

7. A certain sum of money was invested at $3\frac{1}{2}\%$ per annum, Compound Interest. The Interest due at the end of the first year was £22 8s. Find (i) the Principal and (ii) the Amount at the end of the fourth year.