

AN ROINN OIDEACHAIS

(Department of Education.)

INTERMEDIATE CERTIFICATE EXAMINATION, 1947.

MATHEMATICS (Arithmetic).

TUESDAY, 10th JUNE.—MORNING, 10 TO 12.

The total number of questions answered should not exceed *six*.

Mathematical Tables may be obtained from the Superintendent.

1. The engine of a train uses $2\frac{3}{4}$ tons of coal at £3 15s. 6d. per ton for a journey of 112 miles. Find, to the nearest penny, the cost per mile.

[30 marks.]

2. Find, in dollars and cents, to the nearest cent, the compound interest on 750 dollars for 3 years at 2% per annum.

[Note : 1 dollar=100 cents.]

[30 marks.]

3. An article for sale has a marked price of 16s. 8d. The seller can allow a discount of 10% of the marked price and still make a profit of 25%. What did the seller pay for the article ? If he sells at the marked price, what is his percentage profit ?

[30 marks.]

4. Find, correct to two places of decimals, the value of

$$\sqrt{1764} \times \sqrt{176.4} + \sqrt{17.64} \times \sqrt{1.764}.$$

[30 marks.]

5. By how much per cent.

(i) does £1 exceed 12s. 6d. ;

(ii) does $\frac{7}{16}$ exceed $\frac{5}{12}$;

(iii) does 15 miles per hour exceed 7 yards per second ?

[30 marks.]

6. Use logarithms to find the value of

(i) $(4.068)^3$; (ii) $\sqrt[3]{0.4068}$;

(iii) $(4.068)^3 \div \sqrt[3]{0.4068}$.

[35 marks.]

P.T.O.

7. A rectangular block of metal 37.8 cm. by 24.6 cm. by 18.3 cm. is made into wire of diameter 0.35 cm. Find in kilometres, correct to 3 significant figures, the length of the wire.

[35 marks.]

8. (a) Express in ounces, correct to the nearest ounce, the weight of 1 cubic inch of mercury, if 1 cubic centimetre weighs 13.6 grams.

(b) Express in lbs. per square inch, correct to the nearest lb., a pressure of 9.5 kilograms per square centimetre.

[35 marks.]

9. A man leaves home for a walk at 2 p.m. After walking 3 miles at $3\frac{1}{2}$ miles per hour he rests for half-an-hour and then proceeds at the same speed until 4 p.m. He then rests for 15 minutes before returning home along the same road at a uniform speed without stopping. He arrives home at 6.10 p.m. Represent his journey by means of a graph, and from it find, as accurately as you can, (i) the total distance he walked, (ii) the speed at which he walked home, (iii) how far he was from home at 5.30 p.m.

[35 marks.]