

AN ROINN OIDEACHAIS

(Department of Education.)

INTERMEDIATE CERTIFICATE EXAMINATION, 1943.

MATHEMATICS (Arithmetic).

TUESDAY, 15th JUNE.—MORNING, 10 A.M. TO 12 NOON.

The total number of questions answered should not exceed six.

Mathematical Tables may be obtained from the Superintendent.

1. (a) What fraction of £69 3s. is £53 15s. 8d. ?

[Give answer in simplest form].

- (b) Find the value of 0.875 of £62 15s.

[30 marks]

2. Find, to the nearest integer,

(i) the square of 83.076 ;

(ii) the square-root of 190,000.

[30 marks]

3. Find, to the nearest penny, the Compound Interest on £8,600 for 2 years at $2\frac{1}{4}\%$ per annum.

[30 marks]

4. A pond whose area is 2 acres is frozen over with ice to an average thickness of 5 inches. Find, to the nearest ton, the weight of the ice, if one cubic foot of ice weighs 57 lbs.

[30 marks]

5. A man buys milk at 1s. 8d. per gallon and sells it at 8d. per quart. He gives such excess measure to his customers that for every gallon he buys he is paid for only $7\frac{1}{2}$ pints ; find his percentage profit.

If he has an income of £34 per week from his sales, what is his weekly profit ?

[30 marks]

6. The inner ring of a circular path measures 150 yards in circumference and the path is 2 yards wide. Find, to the nearest shilling, the cost of surfacing the path at 4s. 6d. per square yard.

[35 marks]

7. By using logarithms and the Tables, Page 33, find

- (i) the number of lbs. in a kilogramme ;
- (ii) the number of inches in a metre ;
- (iii) the number of square inches in a square metre.

[35 marks]

8. Water flows through a pipe at the rate of 6 gallons per minute into a cylindrical tank of diameter $1\frac{1}{2}$ feet and height 4 feet. How long, to the nearest second, will it take to fill the tank ? If the pipe is 1 inch in diameter, at what rate, in feet per second, is the water flowing through it ?

[35 marks]

9. Represent the following journeys graphically :—

Two cyclists, A, B, start from the same place along the same road : A at 10 a.m. and B at 11 a.m. B's speed at all times is 8 miles per hour. A rides at 12 miles per hour for 2 hours, stops for half an hour, and returns at 10 miles per hour until he meets B. They then complete the journey back together at 8 miles per hour.

From your graph find (i) the time and place at which they meet and (ii) the time at which they arrive back at the starting place.

[35 marks]