AN ROINN OIDEACHAIS.

(Department of Education).

LEAVING CERTIFICATE EXAMINATION, 1957.

MATHEMATICS—ARITHMETIC.

TUESDAY, 4th JUNE.—MORNING, 10 TO 12.

All questions to be answered.

Mathematical Tables may be obtained from the Superintendent.

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1. Fuel briquettes in bales are sold by a trader at the rate of £6 6s. 8d. per ton. Find the selling price of a bale weighing 2 stones. Find, also, the selling price of 117 tons 12 cwt. 2 qr. of briquettes.

If the trader makes a profit of $26\frac{2}{3}\%$, at what price per ton does he purchase the briquettes ?

[28 marks.]

2. £325 is invested at 5% per annum compound interest ; calculate to the nearest penny the interest for the third year.

Find, also, as accurately as the tables allow, the sum to which £325 will amount in 20 years at 5% per annum compound interest.

[28 marks.]

3. What is the least whole number which must be added to 2,900 to make (*a*) a perfect square, (*b*) a perfect cube ?

[28 marks.]

4. A dealer purchases goods at the rate of 1·4 German marks per kilogram, and in addition he has expenses amounting to 75% of the cost price. Find, to the nearest penny, the price per pound at which he should sell the goods to make a profit of 30% on his total outlay.

[See tables, page 33 ; £1=11·68 German marks.]

[28 marks.]

5. The slant height of a right solid cone and the diameter of its base are each 8 inches long. Find the radius of a sphere having the same volume as the cone. Find, also, the radius of a sphere having the same surface area as the cone. Give the result in each case in inches, correct to the nearest tenth of an inch.

[See tables page 33.[

[28 marks.]

6. A man's annual income from a certain Stock is £273. He sells his holding and later reinvests the proceeds in the same Stock when it has fallen to 91. If his annual income is thereby increased by £21, find the price at which he sold the Stock.

If the Stock is a 5% stock, what was the amount of his original holding ?

[30 marks.]

7. If the radius of a circle is 2 feet, show that the area of a segment of the circle of height 1 foot is $\left(\frac{4\pi}{3} - \sqrt{3}\right)$ square feet.

A hollow closed cylinder is 10 feet long and the diameter of its base is 4 feet, the measurements being internal. The cylinder is laid so that its circular ends are vertical and it contains oil, the greatest depth of which is *one* foot. Find in gallons the amount of oil in the cylinder. Give your result to the nearest gallon.

[See tables page 33.]

[30 marks.]