AN ROINN OIDEACHAIS

(Department of Education.)

LEAVING CERTIFICATE EXAMINATION, 1947.

MATHEMATICS—Arithmetic.

TUESDAY, 10th JUNE—Morning, 10 to 12.

Six questions may be answered.

Mathematical Tables may be obtained from the Superintendent.

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1. Find, correct to the nearest 100 tons, the amount of butter required to provide a population of 2,994,000 with a ration of 6 ozs. of butter per person per week for 1 year of 52 weeks.
Find its total cost in pounds, correct to three significant figures, at 2s. 4d. per lb.

[30 marks.]

2. Eggs are bought at 32s. 6d. per 10 dozen and sold at 4s. per dozen. What is the percentage profit ?
If the cost price be reduced by 6d. per dozen, and if one egg in every thirteen is broken, find by what percentage the selling price of the remainder must be altered so as to give the same percentage profit as before.

[30 marks.]

3. A man invests £10,530. He invests one-ninth of it in 5% stock at 117 and the remainder in 4% stock at 104. What is his nett annual income after paying income tax at 6s. 6d. in the pound ?

[30 marks.]

4. Find, correct to the nearest penny, the compound interest on on £312 10s. for 3 years at 6% per annum.
A sum of money is invested at 6% per annum compound interest. The interest for the third year exceeds the interest for the second year by £47 14s. Find the sum invested.

[34 marks.]

5. Make a rough estimate of the value of

$$\frac{56 \cdot 91 \times \sqrt[3]{878 \cdot 4}}{(\cdot 6023)^3},$$

showing clearly how you did it.
Use the tables to find its value correct to three significant figures.

[34 marks.]

6. A field has the shape of a quadrilateral ABCD in which the angles B and C are right angles. If AB=95 yards, BC=110 yards, CD=145 yards, find its area in acres.

If the lengths given above are subject to a maximum error of 4%, what is the maximum possible error in the area, correct to the nearest tenth of an acre.

[34 marks.]

7. A right circular cone is 5 ft. in height and the radius of its base is 1 ft. The top is removed from it by cutting half-way up its height along a plane parallel to its base. Find the volume of the truncated cone thus formed, in cubic feet, correct to two places of decimals.

Another truncated cone is exactly similar in shape to the one above, but the radius of its base is 8 inches. Find its volume, in cubic feet, correct to two places of decimals.

[34 marks.]

8. A mile of wire of diameter $2\frac{1}{2}$ inches weighs 18 tons. Find in kilograms, correct to two significant figures, the weight of wire of same material whose diameter is 4 cms. and whose length is 1 kilometre

[34 marks.]