AN ROINN OIDEACHAIS.

(Department of Education).

LEAVING CERTIFICATE EXAMINATION, 1958.

MATHEMATICS—ARITHMETIC.

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

***All* questions to be answered.**

Mathematical Tables may be obtained from the Superintendent.

---

1. (i) A man owns a house the valuation of which is £18, and he pays Rates of £1 18s. for every £1 of the valuation. How much does he pay in Rates, and what percentage of his income of £600 does that represent ?

(ii) The following table sets out the number of horses and the number of cattle in the country in 1943 and in 1944 :—

Year	Horses	Cattle
1943 ..	453,852	4,136,428
1944 ..	458,866	4,245,936

Find, correct to two significant figures, the percentage increase from 1943 to 1944 in (*a*) the number of horses, (*b*) the number of cattle, (*c*) the number of horses and cattle together.

[28 marks.]

2. Find the value of

$$\frac{(1{\cdot}618)^2 \times \sqrt{5{\cdot}274.}}{0{\cdot}4532}$$

correct to two significant figures.

[28 marks.]

3. A merchant buys goods at 60 francs per kilogram and sells them at £3 10s. per cwt. Find his percentage profit, correct to two significant figures.

(See Tables, p. 33 ; Take £1=1,176 francs.)

[28 marks.]

4. A cylindrical copper pipe 5 feet in length has an internal diameter fo 1·9 inches and an external diameter of 2·5 inches. Find the weight of the pipe, given that a cubic foot of copper weighs 555 lb. (Give the answer correct to the nearest pound.)

If 100 solid copper spheres of equal size have the same weight as the pipe, find the radius of the spheres, correct to the nearest tenth of an inch.

[28 marks.]

5. (i) If a person invests £5,304 in 6% Stock at 102, what income will he have from his investment after income tax at the rate of 7s. 6d. in the £1 has been deducted ?

(ii) If a man sells his holding of $5\frac{1}{2}$% Stock at 99 and invests the proceeds in 5s. shares at 9s. each, what dividend per cent must be paid on the shares so that his income will be unchanged ?

[28 marks.]

6. The population of a certain town is increasing by 4% from one year to the next, i.e., each year the population is 4% greater than it was the year before. On that basis estimate with the aid of the Tables what the population will be in ten years' time, given that it is now 500,000.

Find also, what the population was two years ago.

[30 marks.]

7. A basket is in the shape of a frustum of a right circular cone. The vertical height of the basket is 10 inches, the radius of the base is $3\frac{1}{2}$ inches, and the radius of the top is $5\frac{1}{2}$ inches (internal measurements). Find the capacity of the basket, correct to the nearest cubic inch.

[30 marks.]