

AN ROINN OIDEACHAIS.

(Department of Education).

LEAVING CERTIFICATE EXAMINATION, 1954.

MATHEMATICS—ARITHMETIC.

WEDNESDAY, 9th JUNE.—MORNING, 10 TO 12.

All questions to be answered.

Mathematical Tables may be obtained from the Superintendent.

1. Find the value of

$$538.9 \times \sqrt{0.8743} \div (0.631)^2$$

correct to three significant figures.

[28 marks.]

2. A merchant buys a certain volume of petrol at 34 francs per litre. He sells two-thirds of it at 4s. per gallon and the remainder at 3s. 6d. per gallon. Find his percentage profit, correct to two significant figures.

[£1=976 francs; 1 gallon=4.546 litres.]

[28 marks.]

3. Which will give the better yield on money invested, (a) $4\frac{1}{4}\%$ Stock at 93, or (b) $5\frac{1}{2}\%$ Stock at 114?

A man invested £1,026 in $5\frac{1}{2}\%$ Stock at 114, and he also invested a certain sum of money in $4\frac{1}{4}\%$ Stock at 93. If his income from these investments was £160, find how much money he invested in the $4\frac{1}{4}\%$ Stock.

[28 marks.]

4. (i) Find, correct to the nearest penny, the Compound Interest on £500 for 3 years at $2\frac{1}{2}\%$ per annum.

(ii) Find, correct to one decimal place, the rate of Compound Interest at which £247 would amount to £330 in 8 years.

[28 marks.]

5. The surface area of a sphere is 20 square inches. Find the volume of the sphere in cubic inches, correct to two decimal places.

A piece of cylindrical piping, 2 feet long, has an internal diameter of 1.8 inches and an external diameter of 3.2 inches. Find how many solid spheres of surface area 20 square inches could be made from the material of the pipe.

[28 marks.]

6. A vessel is in the shape of a frustum of a right circular cone. The diameter of the bottom is 18 inches, the diameter of the top is 30 inches, and the vertical height of the vessel is 8 inches. Find the capacity of the vessel in gallons, correct to the nearest gallon.

If the vessel is half-full of water, i.e. filled to half its capacity, find the depth of water in the vessel correct to the nearest inch.

[See Tables, p. 33.]

[30 marks.]

7. A loan of £400, taken out on 1st March, 1954, is to be repaid by four equal annual instalments, the first instalment to be paid on 1st March, 1955. Find the amount of each instalment, correct to the nearest £1, Compound Interest being reckoned at the rate of 6% per annum,

[30 marks.]