AN ROINN OIDEACHAIS

(Department of Education).

INTERMEDIATE CERTIFICATE EXAMINATION, 1956.

MATHEMATICS (Arithmetic).

TUESDAY, 5th JUNE.—MORNING, 10 TO 12.

All questions to be answered.

Mathematical Tables may be obtained from the Superintendent.

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1. (*a*) Find the cost of 63 articles at £7 19s. 9d. each.
   (*b*) If sugar beet contains 17% of sugar by weight, find in pounds, the weight of sugar contained in 13 tons 10 cwts. 2 qrs. 4 lbs. of beet.

[25 marks.]

2. Find, correct to the nearest penny, the compound interest on £870 for two years at $4\frac{1}{2}\%$ per annum.

[25 marks.]

3. Find the value of $\frac{369{\cdot}8 \times \sqrt{0{\cdot}861}}{(25{\cdot}26)^2}$, correct to two significant figures.

[30 marks.]

4. If a car does 42 miles to the gallon and petrol costs 46 francs per litre, find the cost, in pounds and shillings, correct to the nearest shilling, of the petrol for a journey of 2,500 kilometres, assuming that £1=982 francs.

(See Tables p. 33)

[30 marks.]

5. A mixture of tea is made by adding 5 lb. of one brand, bought at 4s. 6d. per lb., to every 3 lb. of another brand, bought at 6s. 6d. per lb. If the mixture is sold at 7s. per lb., find the percentage profit.

How many pounds of the 4s. 6d. tea should be added to every 3 lb. of the 6s. 6d. tea so that a profit of 25% would be made by selling the mixture at 7s. 6d. per lb. ?

[30 marks.]

6. (i) Find the lowest common multiple and the greatest common measure of 36, 168, 420.

(ii) A column is built up of cylinders each of height $4\frac{1}{2}$ in. placed one on top of the other. A second column is similarly built up of cylinders each of height $6\frac{1}{4}$ in., and a third column of cylinders each of height $9\frac{3}{8}$ in. Find the least height of the columns when they are all of the same height and find the number of cylinders required in that case.

[30 marks.]

7. (i) A solid lead cylinder 20 in. long weighs 3 lb. If a cubic inch of lead weighs 0·4115 lb., find the diameter of the cylinder, in inches, correct to two decimal places.

(ii) A lead pipe of external diameter $1\frac{1}{4}$ in. and internal diameter $\frac{3}{4}$ in. weighs 5 lb. Find the length of the pipe in inches, correct to one decimal place.

[30 marks.]