

AN ROINN OIDEACHAIS  
(Department of Education).

BRAINNSE AN MHEADHON-OIDEACHAIS  
(Secondary Education Branch).

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INTERMEDIATE CERTIFICATE EXAMINATION, 1938.

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MATHEMATICS (Arithmetic).

MONDAY, 20th JUNE.—MORNING, 10 A.M. TO 12 NOON.

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The total number of questions answered should not exceed *six*.

Mathematical Tables may be obtained from the Superintendent.

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1. Find the cost of

(i) 7 tons 14 cwt. at 19s. 4½d. per cwt.;

(ii) 18 acres 3 roods at £56 6s. 8d. per acre.

[30 marks.]

2. What is the weight, to the nearest pound, of a rectangular block 3 ft. 5 inches long, 1 foot 9 inches wide, and 9½ inches thick at 200 lbs. per cubic foot?

What is the value, to the nearest penny, of the stone at 1 franc per 10 kilogrammes, if 147 francs = £1.

[30 marks.]

3. Find the compound interest on £100 for two years at 2½% per annum.

What sum of money invested at 2½% per annum compound interest will amount to £980 11s. 8d. at the end of two years?

[30 marks.]

4. A man bought two houses, one of them costing him £100 more than the other. He sold the former at a profit of 6% and the latter at a loss of 4% and on the whole he gained 1½%. What did he pay for the houses?

[30 marks.]

5. If a cubic foot of water weighs 1,000 ounces and a gallon contains  $277\frac{1}{4}$  cubic inches, how many gallons will weigh 1 ton?

[32 marks.]

6. When a number is divided by 105 in three steps, the factors being 3, 5, 7 in order, the partial remainders are 2, 4, 5 respectively. What is the complete remainder?

If the order of the factors had been 7, 5, 3 what would have been the partial remainders?

[33 marks.]

7. Find the weight of a solid cast iron pillar whose height is 12 feet and the circumference of its base 4 feet 6 inches. Answer to the nearest ton.

(See Tables, page 33).

[35 marks.]

8. Find by logarithms, or otherwise, the values of

(i)  $\sqrt[3]{9}$  ; (ii)  $\frac{1}{\sqrt[3]{9}}$  ; (iii)  $(0.16)^{2\frac{1}{2}}$

[35 marks.]

9. A train leaves Carlow (56 miles from Dublin) at 3.16 p.m. and arrives at Dublin at 5 p.m. Except for stops of 5 minutes at Athy (45 miles from Dublin) and 20 minutes at Kildare (30 miles from Dublin) it travels at a uniform speed. Draw a graph to show the position of the train at all times during the journey and find from the graph the speed of the train.

[35 marks.]