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(Department of Education).

BRAINSE AN MHEÁN-OIDEACHAIS
(Secondary Education Branch).

LEAVING CERTIFICATE EXAMINATION, 1932.

MATHEMATICS.

ARITHMETIC—Paper B.

FRIDAY, 3rd JUNE.—MORNING 10.45 A.M. TO 12.15 P.M.

Five questions may be answered.

Mathematical Tables may be obtained from the Superintendent.
(All questions carry equal marks.)

1. Find by logarithms, as accurately as your tables will permit, the values of :

(i) $(\sqrt{05})^3$;

(ii) $^3\sqrt{24.08} - ^3\sqrt{.0001}$.

2. What is the least number which must be added to 38,000 to make (i) a perfect square, (ii) a perfect cube.

3. If one metal be worth £6 2s. 3d. per oz. and another 1s. 7½d. per oz., what will be the value per oz. of an alloy consisting of 7 parts by weight of the former and 18 parts by weight of the latter? If the alloy is sold at £1 19s. per oz., find the gain per cwt., to the nearest penny.

4. When the duty on a commodity decreases by 25% its consumption increases by 45%. By how much per cent. is the revenue decreased or increased? What percentage increase of consumption would cause the revenue to remain unchanged?

5. Prove that the numbers 3425, 1829 and 37675 have the same L.C.M. as the numbers 3245, 1829 and 37675.

6. Solve graphically the following problem :—

Three men A, B, C travel at 4, 10, 25 miles per hour respectively from the same place and in the same direction. A starts at noon one hour before B and three hours before C. Find at what time C will be midway between A and B.

7. A man receives an income of £207 from a certain stock. He sells out his holding and later re-invests the money in the same stock which has fallen to 69 in the meantime. If his income is thereby increased by £9, find the price at which he sold the stock.

If the stock is a $4\frac{1}{2}\%$, find the amount of his original holding.

8. The slant height (l) of a solid cone and the diameter (d) of the base are each 10 inches long. Find the radius of the sphere having (i) the same total surface area, (ii) the same volume as the cone.

(NOTE.—The area of the curved surface of a cone is $\frac{1}{2} \pi dl$.)

9. The tide-raising force due to an attracting body is proportional to $\frac{m}{r^3}$ where m is its mass and r its distance away. Given that the sun's mass is about 331,000 times and the Moon's mass about $\frac{1}{81}$ times that of the Earth and that the Sun's distance from the Earth is about 390 times the Moon's distance, show that the Sun's tide-raising force is about three-sevenths that of the Moon.