AN ROINN OIDEACHAIS M. 37.

LEAVING CERTIFICATE EXAMINATION, 1964.

MATHEMATICS—ARITHMETIC.

WEDNESDAY, 3rd JUNE.—MORNING, 10 to 12.

All questions to be answered.

Mathematical Tables may be obtained from the Superintendent.

1. A merchant sells tea to a shopkeeper at £15 per 100-lb. chest. Find the percentage profit made by the shopkeeper if he sells the tea at 4s.3d. per lb.

At what price per chest should the merchant buy the tea, if he wished to make the same percentage profit ?

(28 marks.)

2. Calculate, correct to three significant figures, the value of

$$\frac{0{\cdot}0975 \times 19{\cdot}07}{\sqrt[3]{453{\cdot}6}}$$

(28 marks.)

3. A steel sphere weighs 5 lb. Calculate its radius in inches, correct to two places of decimals, if 1 cubic inch of steel weighs 0·292 lb.

Calculate also the surface area of the sphere.

(See Tables, p. 33.)

(28 marks.)

4. A traveller changes 1470 dollars into rupees at the rate of 100 rupees to 21 dollars. He spends 2,200 rupees and invests the remainder at $7\frac{1}{2}\%$ simple interest per annum. At the end of ten months he withdraws his investment together with the interest and changes the total amount back into dollars at the same rate as before. How many dollars does he receive ? (Disregard any exchange charge in the transactions.)

(28 marks.)

5. (a) Express a pressure of 30 lb. per sq. in. in kg. per sq. cm.

(b) An alloy weighing 1 kg. is composed of two metals A and B in the ratio of 3 : 2 respectively. What weight of each metal is present in this alloy ? In another alloy of the same metals weighing 3 kg., there is 600 gm. of metal A. What is the ratio of the metals in this alloy ?

(28 marks.)

6. (a) A man buys £100 worth of 10s. shares standing at 18s. If a dividend of 12% is declared, what percentage profit does his investment yield ?

(b) Find, correct to the nearest penny, the compound interest on £254 for 3 yrs. at $3\frac{1}{2}\%$ per annum.

(30 marks.)

7. A rectangular sheet of metal, of uniform thickness, is 9 in. long and 8 in. wide. Six equal circular holes are drilled through the sheet. If the ratio of the new weight of the sheet to the original weight is 19 : 20, calculate the radius of the holes, correct to three places of decimals.

If each hole is enlarged by increasing the radius by 50%, find the ratio of the final weight of the sheet to the original weight.

(30 marks.)