INTERMEDIATE CERTIFICATE EXAMINATION, 1963.

MATHEMATICS (Arithmetic).

THURSDAY, 6th JUNE — Morning, 10 to 12.

All questions to be answered.

Mathematical Tables may be obtained from the Superintendent.

1. Find the value of 7 tons, 13 cwt., 2 qr. of coal at £9 13s. 6d. a ton, correct to the nearest shilling.

(25 marks.)

2. A circular field has a circumference of 450 yds. Find the area of the field in acres, correct to the nearest half-acre. See tables, page 33.   (1 acre = 4840 sq. yds.)

(25 marks.)

3.   (i) Find the average of the nine whole numbers from 98612 to 98620 inclusive.

   (ii) Find the H.C.F. and the L.C.M. of 18 and 42.

   (iii) The wheels of a car are each 21 inches in diameter. How many revolutions per minute does each of the wheels make when the car is travelling at 30 m.p.h. on a straight road ?   (Take $\pi = 3\frac{1}{7}$.)

(30 marks.)

4. Find the compound interest on £560 for 3 years at 6% per annum, correct to the nearest penny.

By how much does this exceed the simple interest on £560 for the same period at the same rate ?

(30 marks.)

5.   (i) Sugar is bought at £64 a ton and sold at 8d. per lb. Find the percentage profit.

   (ii) A loss of 10% is incurred by selling an article for £81. Find the cost price.

   (iii) A man sells cars at a certain price per car. If he were to reduce his selling price by 10% he would have to sell twice as many cars to make the same total profit. What percentage profit is he making at present ?

(30 marks.)

6.   (i) Find, correct to two significant figures, the value of $\left(1 + \frac{1}{10}\right)^{10}$.

   (ii) Find, correct to three significant figures, the value of

$$\sqrt{\frac{(s - a)(s - b)}{ab}}$$

when $a = 5\cdot1$, $b = 3\cdot5$, $s = 7\cdot3$.

(30 marks.)

7. A block of copper weighing 400 gm. is drawn out into wire with a diameter of 0·4 cm. If 1 c.c. of copper weighs 8·96 gm. find what length of wire, correct to the nearest cm., would the block yield.

If a diameter of 0·5 cm. were required, what length of wire would the block yield ? (See tables, page 33.)

(30 marks.)