

AN ROINN OIDEACHAIS

(Department of Education).

INTERMEDIATE CERTIFICATE EXAMINATION, 1958.

MATHEMATICS (Arithmetic).

TUESDAY, 10th JUNE.—MORNING, 10 TO 12.

All questions to be answered.

Mathematical Tables may be obtained from the Superintendent.

1. Find, correct to the nearest penny, the compound interest on £237 for 3 years at 6% per annum.

[25 marks.]

2. Find the cost of 17 tons of coal at £10 13s. 6d. a ton.

A dealer bought coal at £8 5s. a ton and sold it at 1s. 4½d. a stone : find his percentage profit.

[25 marks.]

3. (i) A certain quantity of sugar would last 12 days if each one of a family took 1½ ounces a day. How long would it last if each one took 2 ounces a day ?

(ii) Find the value of $\frac{a\sqrt{h}}{l^3}$, correct to three significant figures,

when $a=18.64$, $h=.5217$, $l=.3279$.

[30 marks.]

4. A closed wooden box is rectangular and its external dimensions are as follows : length 10 inches, breadth 8 inches, height 6 inches. Find the external surface area of the box.

If ½ inch is the thickness of each side of the box, and of the top and bottom, find the capacity of the box and the volume of wood needed to construct it.

[30 marks.]

5. Find the prime factors of each of the numbers 198 ; 660 ; 825, and find the highest common factor and the least common multiple of the three numbers.

The front wheels of a tractor have a circumference of 54 inches and the rear wheels have a circumference of 168 inches. What is the least distance the tractor must travel so that each wheel will make a whole number of revolutions in covering that distance ?

[30 marks.]

6. (i) Calculate the cost in pounds, correct to the nearest pound, of a journey of 2,800 miles at the rate of 7 francs per kilometre.

(ii) Which is the dearer, petrol at 4s. 9d. a gallon or petrol at 70 francs a litre ?

(iii) Which is the faster, 100 yards in 60 seconds or 100 metres in 65 seconds ?

(See Tables, p. 33. Take £1=1,176 francs.)

[30 marks.]

7. A cylindrical pipe has an internal diameter of 1.6 inches. Water is pouring through the pipe at a speed of 5 feet per second. How long would the pipe take to deliver ten gallons of water ? (See Tables, p. 33.)

Another cylindrical pipe has an internal diameter of 3.2 inches and water is pouring through it also at a speed of 5 feet per second. If both pipes were discharging into a ten-gallon tank, how long would they take to fill the tank ?

[30 marks.]