AN ROINN OIDEACHAIS M.36

INTERMEDIATE CERTIFICATE EXAMINATION, 1966

MATHEMATICS (Arithmetic)

WEDNESDAY, 8th JUNE - Morning, 10 to 12

All questions to be answered.

Mathematical Tables may be obtained from the Superintendent.

1. Find the cost of 17 tons 16 cwt. at £13 8s. 4d. per ton. If 5% discount is allowed for cash, find, to the nearest penny, the cash price.

(25 marks)

2. Find, to the nearest penny, the compound interest on £355 for 3 years at 5% per annum. Find, to the nearest shilling, what principal at 5% per annum simple interest would give the same interest in the same time.

(25 marks)

3. Evaluate, correct to two significant figures, $\frac{m^3 n}{\sqrt{m^2 - n^2}}$ when $m = 1.135$ and $n = 0.615$.

(30 marks)

4. (i) The map of a district is drawn to a scale of 1·6 cm. to a mile. What area on the map would represent a lake 3,500 hectares in extent ? (1 hectare = $2\frac{1}{2}$ acres).

(ii) A square ABCD has side 25 miles long. A racing-car travels from A to B, B to C, C to D and D to A, at rates of 25, 50, 75 and 100 miles per hour, respectively. Find the average speed of the car for the full journey.

(30 marks)

5. (i) A car was bought for $2,520 (2,520 dollars) and sold for £720. If £1 = $2·8 find the percentage loss.

(ii) A profit of 20% is made by selling an article for £600. Find the cost price.

(iii) Having bought an article for 5s. 0d. a dealer sells it at a certain price. If he were to charge 2s. 6d. more for the article he would double his percentage profit. For how much did he sell the article ?

(30 marks)

6. A cube of ice has total surface area $1\frac{1}{2}$ square feet. Calculate its volume in cubic feet.

The ice is placed in an empty vertical cylinder of internal radius 5·8 inches and melts. When ice melts the resulting volume of water is less by 8% than the volume of the ice. Find, correct to two places of decimals, the height in inches to which the water rises in the cylinder.

(30 marks)

7. A shopkeeper mixes 3 lbs. of sweets bought at 2s. 0d. per lb. with 2 lbs. of sweets bought at 3s. 0d. per lb. and sells the mixture at 9d. per qr. lb. Find his profit per cent.

If he mixes an equal weight of each of the two types of sweets, at what price per pound must he sell the mixture to have the same percentage profit as before ?

(30 marks)