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(Department of Education).

BRAINNSE AN MHEADHON-OIDEACHAIS
(Secondary Education Branch).

INTERMEDIATE CERTIFICATE EXAMINATION, 1938.

ELEMENTARY MATHEMATICS (Algebra).
FOR GIRLS ONLY.

TUESDAY, 21st JUNE.—AFTERNOON, 3.30 P.M. TO 6 P.M.

Seven questions may be answered

Mathematical Tables may be obtained from the Superintendent.

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1. Multiply $3a^2+2ab-b^2$ by $3a^2-2ab-b^2$ and divide the product by a^2-b^2.

Show that the quotient $=0$ when $b=\pm 3a$.

[20 marks.]

2. Find the Lowest Common Multiple of

$$x^2-4, \quad x^3+8, \quad 2x^2-x-6.$$

[20 marks.]

3. Prove that

$$(a+b+c)^3-(a^3+b^3+c^3)=3(a+b)(b+c)(c+a).$$

[20 marks.]

A girl bought equal quantities of sweets at 1d. per ounce and 2d. per ounce. Had she divided her money equally between the two kinds she would have got 1 ounce more. How many ounces of each kind did she buy?

[20 marks.]

5. Factorise :
   (i) $ca+cx-ba-bx$;
   (ii) a^2-b^2+2b-1 ;
   (iii) $6x^2-25x+21$;
   (iv) $4(a+b)^2-(a-b)^2$.

[22 marks.]

6. Solve the equation

$$x - \frac{1}{x} = 6 - \frac{1}{6}$$

[22 marks.]

7. Simplify

$$\frac{2x^2}{(2x+1)(2x-1)(x-1)} - \frac{1}{6(2x+1)} - \frac{2}{3(x-1)}$$

[22 marks.]

A man bought p dozen apples for m shillings, and q dozen of another kind for n shillings. How many apples did he buy? How much did he pay for them? What is the average price that he paid per dozen?

[22 marks.]

9. Simplify (i) $\dfrac{x+4}{x+2} - \dfrac{x+5}{x+3}$; (ii) $\dfrac{x-3}{x-5} - \dfrac{x-2}{x-4}$;

and solve the equation

$$\frac{x+4}{x+2} - \frac{x+5}{x+3} = \frac{x-3}{x-5} - \frac{x-2}{x-4}$$

[22 marks.