INTERMEDIATE CERTIFICATE EXAMINATION, 1963.

ELEMENTARY MATHEMATICS (GEOMETRY).

For girls only.

MONDAY, 10th JUNE.—Morning, 10 to 12.

<u>All</u> questions to be answered.

All questions carry equal marks.

1. Prove that the opposite sides and angles of a parallelogram are equal to one another, and that each diagonal bisects the parallelogram.

2. If two sides of a triangle are equal, prove that the angles opposite these sides are also equal.

D is the middle point of a straight line BC and A is another point (outside BC) such that DA = DB.   Prove that the angle CAB is a right angle.

3. Show, with proof, how to circumscribe a circle about a given triangle.

4. Prove that the angles in the same segment of a circle are equal.

ABCD is a cyclic quadrilateral and BD bisects the angle CDA.   Prove that AB = BC.

5. Using ruler and compass only, construct

 (i) a right angle,

 (ii) a triangle ABC so that the base BC is 5 cms., the side AB is 4 cms. and the vertical angle A is a right angle.

(No proof required but lines of construction should be clearly shown.)

6. Prove that triangles on equal bases and between the same parallels are equal in area.

In a quadrilateral ABCD the diagonals AC and BD intersect at O.   If the length of OB is twice the length of OD show that the area of the triangle ABC is twice the area of the triangle ACD.