GEOMETRY

1964

100 Marks. Time—One hour and a half.

All questions to be answered.

1. Using ruler and compass only, draw a triangle whose angles are in the ratio 2 : 3 : 7, and having one side 3". What is the length of each of the other two sides?

[16 marks.]

2. Show that the angle in a semicircle is a right angle.

PQ is a diameter of a circle and PR is a chord. Show that PR is less than PQ.

Find a point M on the circumference such that the chord PM = $\frac{1}{2}$ PQ.

[16 marks.]

3. A television aerial is 125′ high and a telegraph pole is 25′ high. They are 160′ apart. Find, by drawing a diagram to scale, the distance from the top of the aerial to the top of the pole.

[17 marks.]

4. What is meant by parallel lines? AB is a diameter of a circle and AC and BD are parallel chords. Show that AC is equal to BD and that BC is parallel to AD.

[17 marks.]

5. How many degrees in each of the three angles of the triangle ABC if AB = AC and the angle at B is twice as big as the angle at A?

Points D and E are taken in the base BC of an isosceles triangle ABC such that BD = CE.

Show that $\angle ADE = \angle AED$.

[17 marks.]

6. Construct geometrical figures to show:

(i) $(2a)^2 = 4a^2$

(ii) $(a+b+c)^2 = a^2+b^2+c^2+a(b+c)+b(a+c)+c(a+b)$.

[17 marks.]