TEST PAPER: MATHEMATICS
Time: 50 Minutes   **Class:** 9th I.C.S.E.
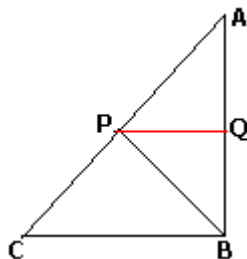**Max. Marks:** 30 Marks   **Date:** 12th September, 2018

Marking Scheme: *Three questions carry 10 marks each. Questions have 3 subparts each. Subparts (a) and (b) carry 3 marks each and subpart (c) carries 4 marks.*
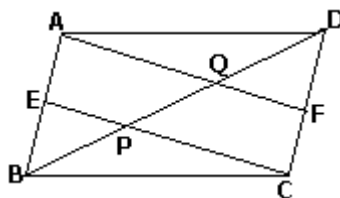
Question 1:

a. In $\triangle ABC$, right angled at B; and P is the mid point of AC. Prove that 1) PQ $\perp$ AB 2) Q is the mid point of AB 3) PB = PA = ½ AC.

b. Prove that the triangle formed by joining the mid-points of the sides of an equilateral triangle is also an equilateral triangle.

c. Prove the mid-point theorem.

Question 2:

a. Factorise:
$a^2 - 2ab + b^2 - c^2$

b. Evaluate:
(i) $(405)^2 - (395)^2$
(ii) $(7.8)^2 - (2.2)^2$

c. In a parallelogram ABCD, E and F are the mid-points of sides AB and CD respectively. Prove that the line segments AF and EC trisect the diagonal BD.

Question 3:

a. Factorise:
$25(x + y)^2 - 36(x - 2y)^2$.

b. Factorise:
$a^2b^2 - 6abc + 9c^2$
$m^2 - 4mn + 4n^2$

c. Factorize by grouping the following expressions:
(i) $(p - 4) - (p - 4)^2 + 12 - 3p$
(ii) $q (r - s)^2 - p (s - r) + 3r - 3s$