TEST PAPER: MATHEMATICS

Time: 50 Minutes **Class:** 10th I.C.S.E.

Max. Marks: 30 Marks **Date:** 6th June, 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. Find the slope of a line, which passes through the origin, and the mid-point of the line segment joining the points P (0, – 4) and B (8, 0).

b. Find the value of x for which the points (x, – 1), (2,1) and (4, 5) are collinear. Also, find the slope of the line joining the three points.

c. Use graph paper for this question. The point P (2, –4) is reflected in the x = 0 to get the image P'.
   (i) Write down the co-ordinates of P'.
   (ii) Point P' is reflected in the line y = 0, to get the image P". Write down the co-ordinates of P".
   (iii) Name the figure PP'P".
   (iv) Find the area of the figure PP'P".

Question 2:

a. Line through the points (–2, 6) and (4, 8) is perpendicular to the line through the points (8, 12) and (x, 24). Find the value of x.

b. Find the slope of the lines:
   (i) Passing through the points (3, – 2) and (–1, 4),
   (ii) Passing through the points (3, – 2) and (7, –2),
   (iii) Making an angle of 30° with the positive direction of x-axis

c. Without using distance formula, show that points (– 2, – 1), (4, 0), (3, 3) and (–3, 2) are the vertices of a parallelogram.

Question 3:

a. Without using the Pythagoras theorem, show that the points (4, 4), (3, 5) and (–1, –1) are the vertices of a right-angled triangle.

b. Point P (a, b) is reflected in the x-axis to P' (5, –2).
   (i) Write down the values of a and b.
   (ii) If P" is the image of P when reflected in the y-axis. Write down the co-ordinates of P".
   (iii) Name the single transformation that maps P' to P".

c. The line 4x – 3y + 12 = 0 meets the x-axis at A and y-axis at B.
   (i) Write down the co-ordinates of A and B.
   (ii) Verify if the point (6, 4) lies on the line
   (iii) Find the slope of the line using the points A and B
   (iv) Find the slope of any line perpendicular to the given line using your answer in sub-part (iii)