TEST PAPER: MATHEMATICS
Time: 60 Minutes   **Class:** 10th I.C.S.E.
Max. Marks: 40 Marks   **Date:** 6th February, 2019

Learn At Quest

Marking Scheme: *Questions 1 to 3 have 3 subparts each. Subparts (a) and (b) carry 3 marks each and subpart (c) carries 4 marks. Questions 4 and 5 have 2 subparts each. Subparts (a) and (b) carry 5 marks each.*
Answer any 4 questions out of 5.

Question 1:
a. Point A and B have co-ordinates (7, 3) and (1, 9) respectively. Find:
   (i) The slope of AB
   (ii) The equation of perpendicular bisector of the line segment AB
   (iii) The value of p of (-2, p) lies on it
b. A card is drawn at random from a well-shuffled deck of 52 cards. What is the probability of getting:
   (i) Black king   (ii) Red face card   (iii) A black card
c. A plane left 30 minutes later than the schedule time and in order to reach its destination 1500 km away in time, it has to increase its speed by 250 km/hr from its usual speed find its usual speed.
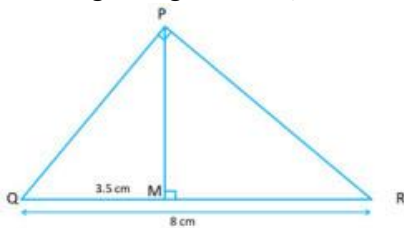
Question 2:
a. Find the value of k if (x-2) is a factor of $x^3 + 2x^2 - kx + 10$. Hence determine whether (x+5) is also a factor.
b. In what ratio is the line joining A (0, 3) and B (4, -1) divided by the x-axis? Write the co-ordinates of the point where AB intersects the x-axis.
c. Draw a circle of radius 1.5 cm. Take a point P outside it. Without using the centre, draw two tangents to the circle from the point P?

Question 3:
a. P is the solution set of 7x - 2 > 4x + 1 and Q is the solutions set of $9x - 45 \leq 5(x - 5)$; where x ∈ R. Represent
   i) P ∩ Q
   ii) P - Q
   iii) P ∩ Q' on different number lines.
b. Prove that: $\sqrt{\dfrac{1-\cos A}{1+\cos A}} = cosec\, A - \cot A$
c. The total area of a solid metallic sphere is 1256 cm^2. It is melted and recast into solid right circular cones of radius 2.5 cm and height 8 cm. Calculate: (i) the radius of the solid sphere,
                                                                                                                  (ii) the number of cones recast.

Question 4:
a. In the right-angled ΔQPR, PM is the altitude. Given that QR = 8 cm and MQ = 3.5 cm, calculate the value of PR.

b. The mean of the following frequency distribution is 57.6 and the sum of the observation is 50. Find the missing frequency f_1 and f_2.

Class	0 – 20	20 – 40	40 – 60	60 – 80	80 – 100	100 – 120
Frequency	7	f_1	12	f_2	8	5

Question 5:
a. From the top of a cliff, 60 m high, the angles of depression of the top and bottom of a tower are observed to be 30º and 60º. Find the height of the tower.
b. The sum of three numbers in Arithmetic Progression is -3 and their product is 8. Find the numbers.