TEST PAPER: MATHEMATICS

Time: 60 Minutes **Class: 10th C.B.S.E.**

Max. Marks: 40 Marks **Date: 6th February, 2019**

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. Show that any positive odd integer is of the form 6q + 1, or 6q + 3, or 6q + 5, where q is some integer.

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:

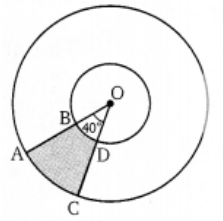
a. If the product of two zeroes of polynomial $2x^3 + 3x^2 - 5x - 6$ is 3, then find its third zero.

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. Find the area of the shaded region in the given figure, ¡f radii of the two concentric circles with centre O are 7 cm and 14 cm respectively and ∠AOC = 40°.

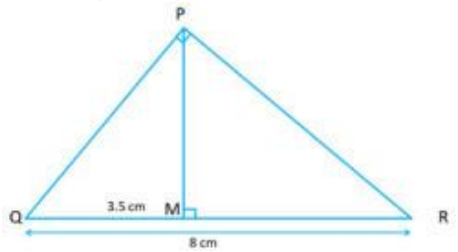


b. Prove that: $\sqrt{\frac{1-\cos A}{1+\cos A}} = cosec\ A - \cot A$

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 30° and 60°. 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.