STD: IX   Marks: 60
Date: 07/10/2020   Time: 2hrs

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Question 1

a.   X = 5 - $2\sqrt{6}$, find the value of $x^2 + \frac{1}{x^2}$.   **[3]**

b.   Rs.50000 is invested for 3 years at the interest rate of 8% per annum. Find the difference in interest earned in each year in case of compound interest and simple interest.   **[3]**

c.   Using suitable identities, find the product of the following equation:

   i.   (y + 3) (y + 8)

   ii.   (x − 3)(x + 3)   **[4]**

Question 2

a.   Find the amount and compound interest on Rs. 16000 for 1½ years at 10% rate per annum, interest being compounded annually.   **[3]**

b.   If $x = \dfrac{1}{4-x}$, find the value of   i. $x + \dfrac{1}{x}$ ii $x^3 + \dfrac{1}{x^3}$ **[3]**

c.   Factories : $9x^4 - (4x^2 + 4x + 1)$ **[4]**

Question 3

a.   Solve 3x + 2y = 4; 8x + 5y = 9 by cross multiplication method.   **[3]**
b.   If $5^{2x-1} = 25^{x-1} + 100$, find the value of x.   **[3]**
c.   In two digit number the sum of the digits is 7. If the order of the digits is reversed the number formed is 28 greater than the twice the unit digit of the original number, find the number. **[4]**

Question 4

a.   Find the value of $2\sqrt{2}$ cos 45˚ cos 60˚ $2\sqrt{3}$ sin 30˚ tan30˚ − cos0˚   **[3]**
b.   Without trigonometric tables evaluate ;
   $\dfrac{\sec 29°}{cosec\ 61°} + 2\ cot8° \cot 17° \cot 45° \cot 73° \cot 82° - 3(sin^2 38° + sin^2 52°)$ **[3]**
c.   In the adjoining figure , ΔABC is right angled triangle at B and ΔABD is right angled at A. If BD is perpendicular to AC and BC = $2\sqrt{3}$ cm. Find the length of AD.   **[4]**
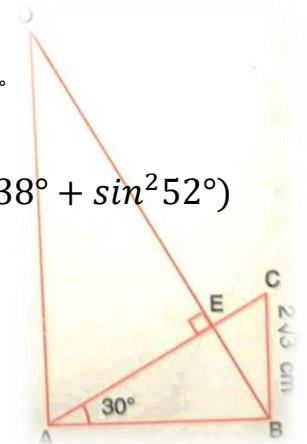
Question 5

a.   Plot a point P (-3.4). Draw PM and PN perpendicular to x – axis and y- axis respectively. State the co-ordinates of point M and N **[3]**

b.   The points scored by a kabaddi team is in a series of matches are as follows: 7,17,2,5,27,15,8,14,10,48,10,7,24,8,28,18. Find mean and median of this data. **[3]**

c.   Solve the following pair of equation graphically. Plot at least 3 points for each straight line. 2x -7y = 6, 5x- 8y = - 4 **[4]**

Question 6

a.   Using class intervals 0 - 4, 4 - 8, 8 - 12 … construct the frequency distribution table for the following data.
13, 6, 10, 5, 11, 14, 2, 8, 15, 16, 9,13, 17, 11, 19, 5, 7, 12, 20, 21, 18, 1, 8, 12, 18.
Also construct frequency polygon using histogram. **[6]**

b.   If two vertices of an equilateral triangle are (0, 0) and (3, 0), find the third vertex. **[4]**

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