**CLASS X**
MATHS

Q1   Solve the following linear equation   1. $4x + \frac{6}{Y} = 15$: $6x - \frac{8}{Y} = 14$ 2. $\frac{a}{X} - \frac{b}{Y} = 0$: $\frac{ab^2}{X} + \frac{a^2b}{Y} = a^2 + b^2$

Q2   Find the value of a & b if the equation has infinite many solution $2x - (a-4) y = 2b+1$: $4x - (a-1)y = 5b -1$

Q3   Points A& B are 90 km apart from each other on a highway. A car starts from A & other starts from B at the same time. If they go in same direction they meet in 9 hr and if they go in opposite direction they meet in 9/7 hr.Find their speeds.   (40, 30)

Q4   Find the value of A & B so that the polynomial $3x^3+ax^2-13x +b$ is divisible by x^2-2x-3.   (a=-4, b=-6)

Q5   HCF = x-2 : LCM = x^3-4x^2+x+6 :   P(x) = x^2-5x+6. Find Q(x). (x^2-x-2)

Q6   If   P = $\frac{x^3+y^3}{(x-y)^2+3xy}$ Q= $\frac{(x+y)^2 - 3xy}{x^3-y^3}$ and R= $\frac{xy}{x^2-y^2}$ then find $(P \div Q) * R$ (xy)

Q7   For what value of K, $(4 - k) x^2 + (2k + 4) x + (8k+1) = 0$ is a perfect square.   (0, 3)

Q8   A fast train takes 3 hr less than a slow train for a journey of 600 km. If the speed of slow train is 10km less than that of fast train, Find the speed of two trains.   (40, 50)

Q9   If the mth term of AP is 1/n & the nth term is 1/m show that the sum of mn^{th} term is ½ (mn + 1).

Q10   An article is sold for Rs 500 cash or for Rs 150 cash down payment followed by 5 equal monthly installments. If the rate of interest charged is 18% p.a.Find the monthly installment.   (Rs73.06)

Q11   A loan has to returned in three equal annual installments of Rs 10648 each if the rate of interest is 10% p.a.Find the sum borrowed.

Q12   A right triangle whose sides are 15cm & 20cm is made to revolve about its hypotenuse. Find the volume & surface area of double cone so formed. (use $\pi = 3.14$)   (3768, 1318.8)

Q13   Prove that the ratio of area of two similar triangles is equal to the ratio of square of their corresponding sides.

Q14   At the foot of the mountain the elevation of its submit is 45^0 after ascending 1000m towards the mountain up a slope of 30^0 inclination, the elevation is found to be 60^0. Find the height of the mountain.   (1.366km)

Q15   Find mean using step deviation method:

Below	10	20	30	40	50	60	70	80	90	100
No of students	5	9	17	29	45	60	70	78	83	85 (48.41)

Q16   If the sum of first n terms of an A.P. is given by $S_n = 3n^2 + 2n$ find the nth term of A.P.

Q17   solve for x : $36x^2 - 12ax + (a^2 - b^2) = 0$

Q18   A toy is on the form of cone mounted on a hemisphere of radius 3.5cm. The total height of the toy is 15.5 cm. find the total surface area of the toy.

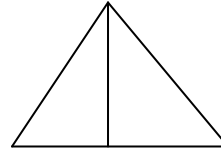Q19   If $\tan \Theta + \sin \Theta = m$ and $\tan \Theta - \sin \Theta = n$, show that $m^2 - n^2 = 4 \sqrt{mn}$
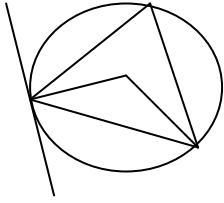
Q20   Q21   Q22
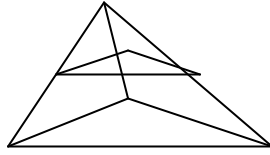
Q20   If   OBA $=32^0$ find the value of x and y.

Q21   If DE II AQ and DF II AR. Prove that EF II QR.

Q22   AD is bisector of   A. If BD= 4cm, DC= 3cm and AB = 6cm, determine AC.