ASSIGNMENT (NCJPS/GSA/X/MATHS/2011-12/02)

Chapter: - Polynomials, Pair of Linear Equations in Two Variables, Triangles and Statistics

Q1. If one of the zeroes of the quadratic polynomial (k-1) x^2 +kx +1 is -3, then what is the value of k.

Ans. 4/3.

Q2.If zeroes of the quadratic polynomial x^2+ (a+1)x +b are 2 and -3 then find the value of a and b.

Ans. 0,-6.

Q3. Find the number of polynomials having zeroes as -2 or 5. Ans. More than 3.

Q4. If one of the zeros of the cubic polynomial x^3+ax^2+bx+c is -1, then what is the product of other two zeroes. Ans. b-a+1.

Q5. Find the zeros of the following polynomials by factorization method and verify the relations between

The zeroes and the coefficients of the polynomials:-

(i) x^3-2x^2-15x Ans. 0,-3,5 (ii) $2x^2-(1+2\sqrt{2})x+\sqrt{2}$ Ans. 1/2 , $\sqrt{2}$

Q6.Find a quadratic polynomial, the sum and product of whose zeroes are $\sqrt{2}$ and -3/2, respectively. Also find its zeroes. Ans. $\frac{1}{2}\left[\sqrt{2}x+1\right]\left[\sqrt{2x-3}\right], -\frac{1}{\sqrt{2}}, \frac{3}{\sqrt{2}},$

Q7.If the remainder on division of x^3+2x^2+kx+3 by x-3 is 21, find the quotient and the value of k. Hence, find the zeroes of the cubic polynomial $x^3+2x^2+kx-18$ Ans. x^2+5x+6, -9, 3,-2,-3,

Q8.Given that the zeroes of the cubic polynomial $x^3-6x^2+3x+10$ are of the form a, a+b,a+2b for some real Numbers a and b, find the value of a and b as well as the zeroes of the given polynomial. Ans.-1,3 or5,-3, Zeroes are -1,2,5

Q9. Find k so that x^2+2x+k is a factor of $2x^4+x^3-14x^2+5x+6$. Also find all the zeroes of the two polynomials. Ans. -3, 1,-3, 2, -1/2

Q10. Given that $x-\sqrt{5}$ is a factor of the cubic polynomial $x^3-3\sqrt{5}x^2+13x-3\sqrt{5}$, find all the zeroes of the polynomial. Ans. $\sqrt{5}, \sqrt{5}+\sqrt{2}, \sqrt{5}-\sqrt{2}$,

Q11. For which values of a and b, are the zeroes of q(x) = x^3+2x^2+a also the zeroes of the polynomial $p(x)=x^5-x^4-4x^3+3x^2+3x+b$? Which zeroes of p(x) are not the zeroes of q(x)? Ans. -1,-2, 1, 2

Q12. Aruna has only Re 1 and Re 2 coins with her. If the total number of coins that she has is 50 and the Amount of money with her is Rs. 75, then the number of Re 1 and Rs 2 coins are, respectively. Ans. 25, 25

Q13. Find the value of c for which the pair of equations cx-y=2 and 6x-2y=3 will have infinitely many Solutions. Ans. No value.

Q14. Is the pair of equations x+2y-3=0 and 6y+3x-9=0 consistent? Justify your answer. Ans. Yes

Q15.Draw the graphs of the equations x=3, x=5 and 2x-y-4=0. Also find the area of the quadrilateral formed By the lines and the x-axis. Ans. 8 sq units.

P.T.O.

Q16. A motor boat can travel 30 km upstream and 28 km downstream in 7 hours. It can travel 21 km upstream and return in 5 hours .Find the speed of the boat in still water and the speed of the stream.
Ans. 10km/h, 4km/h

Q17. Determine , algebraically, the vertices of the triangle formed by the lines:- 3x-y=3, 2x-3y=2 and x+2y=8, Ans.(1,0), (2,3), (4,2)

Q18. Legs (sides other than the hypotenuse) of a right triangle are of length 16 cm and 8 cm . Find the lenth of the side of the largest square that can be inscribed in the triangle. Ans . 16/3 cm.

Q19. An aeroplane leaves an airport and flies duo north at 300 km/h. At the same time, another aeroplane leaves the same airport and flies duo west at 400 km/h . How far apart the two aeroplanes would be after 1 hour 30 minutes. Ans. 750 km.

Q20. Prove that if a line is drawn parallel to one side of a triangle to intersect the other two sides ,then the two sides are divided in the same ratio.

Q21.Daily wages of 110 workers, obtained in a survey, are tabulated below:-

Daily wages(in Rs)	100-120	120-140	140-160	160-180	180-200	200-220	220-240
Number of worker	10	15	20	22	18	12	13

Compute the mean daily wages of these workers. Ans. 170.20

Q22. The percentages of marks obtained by 100 students in an examination are given below:-

Marks	30-35	35-40	40-45	45-50	50-55	55-60	60-65
Frequency	14	16	18	23	18	8	3

Determine the median percentage of marks. Ans. 45.40

Q23.The frequency distribution table of agricultural holdings in a village is given below:-

Area of land(in hectares)	1-3	3-5	5-7	7-9	9-11	11-13
Number of families	20	45	80	55	40	12

Find the modal agricultural holdings of the village .Ans. 6.20

Q24.The annual rainfall record of a city for 66 days is given in the following table:-

Rainfall (in cm)	0-10	10-20	20-30	30-40	40-50	50-60
Number of days	22	10	8	15	5	6

Calculate the median rainfall using ogives (of more than type and of less than type). Ans. 21.25

Q25. Find the mean of first n natural numbers. Ans. (n+1)/2

----------**Best of Luck**----------