

MATHS

BOOKS - JEEVITH PUBLICATIONS MATHS (KANNADA ENGLISH)

ANNUAL EXAMINATION QUESTION PAPER MARCH 2014 NORTH

Part A

1. Write the following set in roster form A = { x is a natural number less than 6}



- **2.** Convert $\left(\frac{5\pi}{3}\right)(e)$ into degress.
 - Watch Video Solution

- **3.** Find the modulus of $\frac{1}{1+i}$
 - Watch Video Solution

- **4.** Find the value of $6P_3-8P_2$
 - Watch Video Solution

5. Find the 10th terms of the G.P. 5,25,125.....



Watch video Solution

6. Find the slope of the time passing through the points (3,-2) and (-1,4)



Watch Video Solution

7. Evaluate $\lim_{x \to 4} \frac{4x+3}{x-2}$



Watch Video Solution

8. Write the negation of " All triangles are not equilateral triangle "



9. If $\frac{2}{11}$ is the probability of an event.What is the probability the event 'not A'



10. A function f is defined by f(x) = 2x - 5 find f(-3)



Part B

1. If X and Y are two sets such that n (X) =17,n (Y) =23, and n $(X \cup Y) = 38$ find n $(X \cap Y)$



2. If A ={ 1,2,3,4,),B= {3,4,5,6} C ={ 7,8,9,10 } find A A \cap (B \cup C)



Watch Video Solution

3. Let fg: R o R be defined respectively by f(x) = x + 1, g(x) = 2x - 3. Find f+g, f-g and $\frac{f}{a}$.



4. Find the angle in radians through which a pendulum swings if its lengts is 75 cm and the tip describes an are of length 10 cm



5. Find the genral solution of $\sec^2 2x = 1 - \tan 2x$



Watch Video Solution

6. Evaluate $\lim_{x o 2} rac{3x^2 - x - 10}{x^2 - 4}$



Watch Video Solution

7. Coefficient of variation of distribution are 70 and the standard deviation is 16. What is the arithmetic mean of the distribution

0

8. Write the converse and contrapositive of " if a number is divisible by 9 then its is divisible by 3"



Watch Video Solution

9. In how many ways can 4 green, 3 red and 2 yellow discs by arranged in row if the discs of the same colour are indistinguishable?



10. Find the angle between the lines $\sqrt{3}x+y=1$ and $x+\sqrt{3}y=1$



11. Represent the complex number z=1+i in polar form.



Watch Video Solution

12. Find all pairs of consecutive even positive integer both of which are larger than 5 such that sum is less than 23.



Watch Video Solution

13. Find the value of x for which the points (x,-1) (2,1) and (4,5) are collinear



14. The centroid of a triangle ABC is (1, 2, 2) If the coordinates of A and B are (3, -5, 7) and (-1, 7, -6) respectively . Find the coordinates of C.



Watch Video Solution

Part C

1. In a group of 400 people, 350 can speak Hindi and 300 can speck English. How many people can speak both Hindi and English?



2. Let $R\!:\!Z o Z$ be a relation defined by

$$R=\{(a,b)\!:\!a,b,\ \in Z, a-b\in z)$$
 . Show that

(ii)
$$(a,b)\in R\Rightarrow (b,a)\in R$$

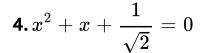
(i) $\forall a \in Z, (a, a) \in R$

(iii)
$$(a,b) \in R \Rightarrow (b,c) \in R \Rightarrow (a,c) \in R$$



3. Prove that
$$rac{\sin x - \sin y}{\cos x + \cos y} = anigg(rac{x-y}{2}igg)$$







5. How many 4 digits numbers can be formed by using the digits to 9 if repetition of digits is not allowed?



Watch Video Solution

6. (ii) If $x+iy=rac{a+ib}{a-ib}$ prove that $x^2+y^2=1$



Watch Video Solution

7. Find the middle terms in the expansion $\left(3-\frac{x^3}{6}\right)^6$



8. Insert five numbers between 8 and 26 such that the resulting sequence is in AP.



9. A committee of two persons is selected from two men and two women. What is the probability that the committee will have (i) no men (ii)two men



10. Differentiate of $\sin x$ w.r.t. x from first principles



11. Find the coordinates of the foci,the eccentricity and the length of the latus rectum the ellips $14x^2+9y^2=36$



Watch Video Solution

12. The 5th ,8th , 11th , terms of a G.P. are p,q and s, respectively .Show that $q^2=ps$



Watch Video Solution

13. Verify by the method of contradiction that $\sqrt{7}$ is irrational number



14. Two students Anil and Sunil appear in an examination. The probability that Anil will qualify in the examination is 0.05 and that Sunil Will qualify is 0.10. The probability that both will qualify in the examination is 0.02 find the probability that Anil and Sunil Will not qualify in the examination.



Watch Video Solution

Part D

1. Draw the graph of the signum function write its domain and range.



2. Prove that $\lim_{x \to 0} \frac{\sin x}{x} = 1$ (x being measured in radians)



3. $1^2+2^2+3^2+.....+n^2=rac{n(n+1)(2n+1)}{6}\,orall n\in N.$



4. A group consists of 7 boys and 5 girls . Find the number of ways in which a team of 5 members can be selected so as to have atleast one boy and girl.

Watch Video Solution

5. State and prove Bionomial theorem for any positive integer n.



Watch Video Solution

6. Derive an expression for the co-ordinates of points that divides the linejoining points $A(x_1,y_1,z_1)$ and $B(x_2,y_2,z_2)$ internally in the ratio m:n.Hence find the co-ordinates of midpoint of AB where A= (3,2,1) and B=(7,6,5).



7. Derive the expression for the length of the perpendicular drawn from the point (x_1, y_1) yo the line ax + by + c = 0



Watch Video Solution

8. (a)Derive geometrically that $\cos(x+y)=\cos x\cos y-\sin x\sin y$.Hence deduce the valueof $\cos 75^\circ$



9. Find the sum to n terms of the series $5+11+19+29+41+\ldots$



10. Define hyperbola as a set of points derive its equation in

the form
$$\frac{x^2}{a^2} - \frac{y^2}{b^2} = 1$$



Watch Video Solution

11. Find the derivative of $\frac{x + \cos x}{\sin x}$ using rulles of differentiation.

