MATHS

BOOKS - JEEVITH PUBLICATIONS MATHS (KANNADA ENGLISH)

ANNUAL EXAMINATION QUESTION PAPER -3

Section A

1. Define power set of a Set.

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2. If G={7,8} and H={5,4,2}, find $G \times H$ and $H \times G$.

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3. Convert 520° into radian measure ?

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4. Express $(-5i)\left(\frac{1}{8}i\right)$ in the form a + ib .

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5. If ${}^nC_8 = {}^nC_2$ Find ${}^nC_2$?

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6. Write the 5^{th} terms of the sequences whose n^{th} term is $a_n = 2^n$?

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7. Find the slope of the lines making inclination of 60° with the postive direction of x-axis ?

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8. Evaluate $\lim_{x \to 0} \left[\frac{\cos x}{\pi - x} \right]$?

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9. Write the contrapostive , If a triangle is equilateral then it is isosceles ?

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10. If two coin are tossed once . Find a sample space ?

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Section B

1. Given A $=\{2, 3\}, B = \{x : x$ is solution of $x^2 + 5x + 6 = 0\}$ find $A \cup B$?

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2. Ilf A and B are two sets such that $A \cup B$ has 50 elements, A has 28 elements and B has 32 elements, how many elements does $A \cap B$ have?

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3. If `(x+ 1,y -2) =(3,1) Find the values of x and y .

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4. Find the radius of the circle in which a central angle of 60° intercepts an arc of length 37.4 cm (use $\pi = \frac{22}{7}$)

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5. Find the value of $\sin 75^\circ$.

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6. If $x + iy = \frac{a + ib}{a - ib}$, prove that $x^2 + y^2 = 1$

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7. Solve $5x + 1 > (-24), 5x - 1 < 24$ and represent the solution graphically on number line ?

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8. Derive the formula to find the angle between two lines with slopes m_1 and m_2

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9. Find the equation of the line passing through the points(-1,1) and (2,-4) ?

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10. Find the equation of the set of points which are equidistant from the points (1,2,3) and (3,2,-1) ?

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11. Evaluate $\lim_{x \to 0} \left(\frac{1 - \cos x}{x} \right)$?

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12. Construct the truth table of$p \wedge q$?

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13. Write the mean of the given data : 6,7,10,12,13,4,8,12 ?

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14. Given P(A) $= \frac{3}{5}$ and $P(B) = \frac{1}{5}$. Find P(A or B), if A & B are mutually exclusive events.

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Section C

1. In a survey it was found that 21 people liked porduct A, 26 liked product B and 29 liked product C. If 14 people liked product A and B , 12 people like products C and A, 14 people liked products B and C and 8 liked all the three products. Find how many liked product C only.

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2. Let A= {1,2,3}, B={3,4} and C={4,5,6} find $(A \times B) \cap (A \times C)$?

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3. Two trees ,A and B are on the same side of a river . From a points C in the river the distance of the trees A and B is 250m and 300m respectively. If the angle C is 45° . Find the distance of the trees?

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4. Express $1 + i\sqrt{3}$ in polar form

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5. Solve the quadratic equation $x^2 + x + \frac{1}{\sqrt{2}} = 0$?

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6. In how many ways can 5 girls and 3 boys be selected in a row so that no two boys are together ?

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7. Find the 13^{th} term in the expansion of $\left(9x - \frac{1}{3\sqrt{x}}\right)^{18} : x \neq 0$?

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8. Find the20^{th} and n^{th} term of the G.P.$\frac{5}{2}, \frac{5}{4}, \frac{5}{8}\Big)$ .....?

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9. Find the 20^{th} term of the series $2 \times 4 + 4 \times 6 + 6 \times 8 + \ldots\ldots\ldots n^{th}$ terms ?

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10. Find the coordinates of foci, the vertices length of major axes of the ellipse $\frac{x^2}{25} + \frac{y^2}{9} = 1$?

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11. Find the derivative of (tanx) w.r.t x from first principal method ?

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12. Write the statement in three different ways conveying the same meaning "If a triangle is equiangular then it is an obtuse angled triangle "?

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13. A coin is tossed twice.What is the probability that atleast one tail occurs?

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14. Three are 4 men and 6 women in a city council.If one council member is selected for a committee at random how

likely is it that it is women ?

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Section D

1. Draw the graph of the function $F(x) = x^2$ and write its domain and range ?

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2. Prove that $\cos^2 2x - \cos^2 6x = \sin 4x . \sin 8x$?

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3.

$$1^2 + 2^2 + 3^2 + \ldots\ldots\ldots + n^2 = \frac{n(n+1)(2n+1)}{6} \forall n \in N.$$

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4. Solve graphically $2x + y \geq 6, 3x + 4y \leq 12$

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5. In an examination , a question paper consists of 12 question divided into two parts, Part I and Part II containing 5 and 7 questions , respectively . A student is required to attempt 8 questions in all selecting atleast 3 from each part . In how many ways can a student select the questions ?

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

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7. Derive the section formula for the internal division in three dimensions.

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

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9. Find the mean deviation about the mean for following data:

xi	5	7	9	10	12	15
Fi	8	6	2	2	2	6

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Section E

1. Prove Geometrically $\cos(x+y) = \cos x, \cos y - \sin x . \sin y$ and hence prove

that $\cos(x-y) = \cos x \cos y + \sin x \sin y$using unit circle concept ?

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2. Find the sum of the n terms to the series $5^2 + 6^2 + 7^2 + \ldots\ldots + 20^2$?

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3. Derive the equation of the ellipse in the form $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1.$

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4. Find the derivative of $\frac{x + \cos x}{\tan x}$ with respect to x

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