MATHS

BOOKS - JEEVITH PUBLICATIONS MATHS (KANNADA ENGLISH)

MOCK QUESTION PAPER - 1

Part A

1. Write the set of possible subsets (power set) of the set $A = \{1, 2\}$

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2. If $(x + 1, 1) = (3, 1)$ find the value of 'x'?

3. Convert $\left(\dfrac{7\pi}{6}\right)^e$ into degrees.

4. Evaluate $\dfrac{n!}{(n-r)!}$ when n= 6 and r=2 ?

5. Find the modulus of $(1 - i)$?

6. If the arithmetic Mean of 8 and 'x' is 20 ,then find 'x' ?

7. Find the slope of the line $3x - 4y + 10 = 0$.

8. Evaluate $\lim_{x \to 0} (x \sec x)$?

9. Write the negation of "For every real number x,x is less than x +1 . "

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10. Describe the sample space for the indicated experiments

A coin is tossed 3 times

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Part B

1. If $A = \{1, 2, 3, 4\} B = \{3, 4, 5, 6\} C = \{5, 6, 7\}$ find

$A \cup (B \cap C)$?

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

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3. Let $f(x) = \sqrt{x}$ and $g(x) = x$ find (i) (f + g) x (ii) (fg) x

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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 $\pi = \dfrac{22}{7}$)

5. If $\cos x = \left(-\dfrac{3}{5}\right)$, x lies in the 3rd Quadrant . Find the value of : (i) sinx (ii) tanx?

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

7. Solve 5x-3>=3x-5 ? Show the graph of the solution on number line ?

8. Find the distance between the parallel lines $(3x + 4y + 5 =)$ and $(6x + 8y + 2 = 0)$?

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

10. Find the Ratio in which yz plane divides the line segment joining the points (4,8,10) and (6, 10,-8) ?

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11. Evaluate $\lim\limits_{x \to 2} \left(\dfrac{3x^2 - x - 10}{x^2 - 4} \right)$

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12. Write the contrapositive and converse of the statement. If two lines are parallel, then they do not intersect in the same plane.

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13. The coefficient of variation for a distribution is 60 and standard deviation is 21. Find the arithmetic mean.

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14. A dies is thrown . What is the probability of an event of getting 'a multiple of 3' ?

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Part C

1. In a survey of 400 students in a school, 100 were listed as taking apple juice, 150 as taking orange juice and 75 were listed as taking both apple as well as orange juice. Find how many students were taking neither apple juice nor orange juice.

2. Let $A = \{1, 2, 3, 4, 5, 6\}$ Defined a relation R from A by $R = \{(x, y)y = x + 1\}$. Write its Doman and Range ?

3. Solve $2\cos^2 x + 3\sin x = 0$

4. Solve $\sqrt{2}x^2 + x + \sqrt{2} = 0$

5. Convert the complex number $-\dfrac{16}{1 + i\sqrt{3}}$ into polar form.

6. In how many ways can one select a cricket team of eleven from 17 players in which only 5 players can bowl.If each cricket team of 11 players must include exactly 4 bowlers

7. Find the middle term in the expansion of $\left(3 + \dfrac{x^2}{6}\right)^6$?

8. Find the sum of all natural numbers lying between 100 and 1000 , which are multiples of 5.

9. The sum of first three terms of a G.P is $\dfrac{39}{10}$ and their product is 1. Find the common ratio and the terms.

10. Find the centre and radius of the circle :

$X^2 + y^2 - 8x + 10y - 12 = 0$?

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

12. Verify by the method of contradiction that $\sqrt{2}$ is irrational .

13. One card is drawn from a well shufflied deck of 52 cards.If each out come is equally likely, calculate the probability that card will be

Not an ace.

14. A fair die is thrown . Describe the following events .

(i) A : a number is less than 7 (ii) B : a number is greater than 7 (iii) C : a multiple of 3

Part D

1. Define an identity function . Draw the graph of identify function and write Domain and Ranges ?

2. Prove that

$$\frac{\sin 9x + \sin 7x + \sin 3x + \sin 5x}{\cos 9x + \cos 7x + \cos 3x + \cos 5x} = \tan 6x \ ?$$

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3.

$$1^3 + 2^3 + 3^3 + \ldots\ldots\ldots + n^3 = \frac{n^2(n+1)^2}{4} \ \forall n \in N.$$

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4. Solve graphically

$$2x + y \geq 4, x + y \leq 3, 2x - 3y \leq 6x \geq 0, y \geq 0$$

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5. How many words, with or without meaning can be made from the letters of the word MONDAY, assuming that no letter is repeated, if.

(i) 4 leters are used at a time,

(ii) all letters are used at a time

(iii) all letters are used but first letter is a vowel ?

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

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7. Derive the equation of a straight line having the intercepts 'a' & 'b' on the X ane Y-axes respectively. Hence find the equation of the line intercepts -3 and 2 on the X and Y-axes respectively.

8. Derive the formula to find the co-ordinates of a point which divide the line joining the points $A(x_1, y_1, z_1)$ and $B(x_2, y_2, z_2)$ internally in the ratio $m : n$.

9. Prove that $\displaystyle\lim_{x \to 0} \left(\frac{\sin x}{x} = 1 \right)$?

10. Find the Mean deviation from the mean for the following data ?

xi	5	10	15	20	25
fi	7	4	6	3	5

Part E

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

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2. Find the sum first 'n' terms of the series $(3 + 7 + 13 + 21 + 31 + ..)$?

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

4. (b) Find the derivative of $\dfrac{x^5 - \cos x}{\sin x}$ with respect to x.