

## MATHS

## **BOOKS - VGS PUBLICATION-BRILLIANT**

# **MODEL PAPER 3**

Section A Very Short Answer Questions

1. If the Arg 
$$\bar{z}_1$$
 and  $Argz_2 ext{are} rac{\pi}{5}$  and  $rac{\pi}{3}$  respectively,find (Arg ( $z_1 + Argz_2$ )

Watch Video Solution

**2.** Find the square root of 7 + 24i.



so that the row begins with a boy ends with a girl.





10. Let X be a random variable such that

$$P(X=\ -2)=P(X=\ -1)=P(X=2)=P(X=1)=1/6$$

and P(X = 0) = 1/3, then find the mean of x.



2. Find the maximum value of the function

$$rac{x^2+14x+9}{x^2+2x+3}$$
 over R.

**3.** If the letters of the word EAMCET are permuted in all possible ways and if the words thus formed are arranged in the dictionary order, find the rank of the word EAMCET.

Watch Video Solution

**4.** Find the number of ways of selecting 11 member cricket team from 7 bats men, 6 bowlers and 2 wicket keepers so that the team contains 2 wicket keepers and atleast 4 bowlers.

• Watch Video Solution  
5. Resolve 
$$\frac{2x^2 + 1}{x^3 - 1}$$
 into partial fractions.  
• Watch Video Solution

**6.** Two persons A and B are rolling die on the condition that the person who gets 3 will win the game. If A starts the game, then find the probabilities of A and B respectively to win the game.



Section C Long Answer Questions

1. Show that one value of

$$\left(rac{1+\mathrm{sin.}\;rac{\pi}{8}+i\cos.rac{\pi}{8}}{1+\mathrm{sin.}\;rac{\pi}{8}-i\cos.rac{\pi}{8}}
ight)^{8/3}$$
 is  $-1.$ 

#### Watch Video Solution



### Watch Video Solution

3. Prove that following

$$C_0+rac{3}{2}.\ C_1+rac{9}{3}.\ C_2+rac{27}{4}.\ C_3+\ldots\ldots+rac{3^n}{n+1}.\ C_n=rac{4^{n+1}-1}{3(n+1)}$$

Watch Video Solution

**4.** If 
$$x = \frac{1}{5} + \frac{1.3}{5.10} + \frac{1.3.5}{5.10.15} + \ldots \infty$$
 then find  $3x^2 + 6x$ .

Watch Video Solution

#### 5. Find the mean deviation from the mean of the following data:

| Marks           | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 |
|-----------------|------|-------|-------|-------|-------|-------|-------|
| No. of Students | 6    | 5     | · 8   | 15    | 7     | . 6 . | _3 ,  |

Using step deviation method.



**6.** Three boxes  $B_1, B_2$  and  $B_3$  contain balls with different colours

as shown below:

|                | White | Black | Red |
|----------------|-------|-------|-----|
| B <sub>1</sub> | 2     | 1     | 2,  |
| B <sub>2</sub> | 3     | . 2   | 4   |
| B <sub>3</sub> | 4     | 3     | 2   |

A die is thrown.  $B_1$  is chosen if either 1 or 2 turns up.  $B_2$  is chosen if either 3 or 4 turns up.  $B_3$  is chosen if either 5 or 6 turns up. Having chosen a box in this way, a ball is chosen at random from this box. If the ball drawn is found to be red, find the probability that it is drawn from box  $B_2$ .



7. Two dice are rolled and the probability distribution of the sum of

the numbers on the dice is formed. Find mean of the sum.

Watch Video Solution