SHIKSHA CLASSES

Subject : Maths - II **Question Paper** **Total Marks :20**

Class : XI **4 : Method of Induction and Binomial Theorem** **Time : 1 Hour**

SECTION - A

Q.1 :Choose the correct option : 4

i) The coefficient of the 8th term in the expansion of $(1+x)^{10}$ is :

a) 7 b) 120 c) $^{10}C_8$ d) 210

ii) The value $^{11}C_2 + {}^{11}C_4 + {}^{11}C_6 + {}^{11}C_8$ is equal to

a) $2^{10}-1$ b) $2^{10}-11$ c) $2^{10}+12$ d) $2^{10}-12$

Q.2 **: Solve the following questions:** **2**

i) Show that $C_0 + C_1 + C_2 + ... + C_{10} = 1024$

ii) The coefficient of the 8th term in the expansion of $(1+x)^{10}$ is :

SECTION B

Solve the following : (ANY 2) 4

Q.3 : Expand : $(\sqrt{5} - \sqrt{2})^5$

Q.4 : Find the value of $(0.9)^6$, correct upto four places of decimals.

Q.5 : Find the constant term (term independent of x) in the expansion of : $\left(\sqrt{x} - \frac{3}{x^2}\right)^{10}$

SECTION C

Solve the following : (ANY 2) 6

Q.6 : Use binomial theorem to evaluate the following upto four places of decimals : $\sqrt[3]{126}$

Q.7 : Show that $C_0 + C_2 + C_4 + C_6 + C_8 = C_1 + C_3 + C_5 + C_7 = 128$

Q.8 : Prove by method of induction, for all

$n \in N \; 1^2 + 3^2 + 5^2 + ... + (2n-1) = \frac{n}{3}$

(2n -1) (2n + 1).

SECTION D

Solve the following : (ANY 1) 4

Q.9 : Prove by method of induction, for all

$n \in N \; (\cos\theta + i\sin\theta)^n = \cos(n\theta) + i\sin(n\theta)$

Q.10 : Prove that :

$(\sqrt{3} + \sqrt{2})^6 + (\sqrt{3} - \sqrt{2})^6 = 970$.

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