Assignment-1

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(1983-1Mark)

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AI24BTECH11019-PRATHEEK

C.Multipe Choice Questions 1) Given positive integers r > 1, n > 2 and that coefficient of (3r) th terms in the

c) n = 3r

d) none of these

binomial expansion of $(1 + x)^{2n}$ are equal. Then

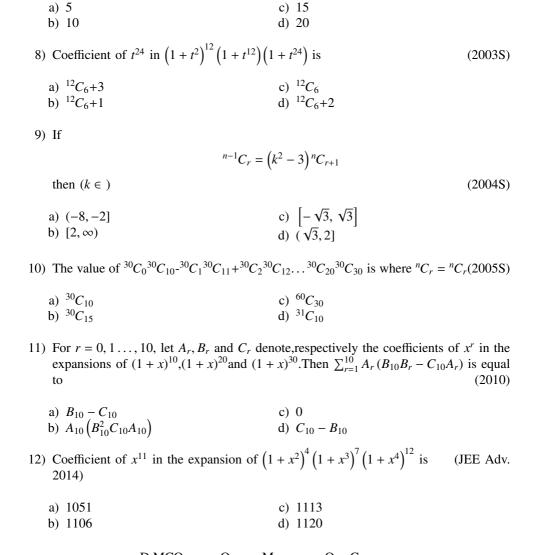
2) The coefficient of x^4 in $\left(\frac{x}{2} - \frac{3}{x^2}\right)^{10}$ is

a) n = 2r

b) n = 2r + 1

a) $\frac{405}{256}$ b) $\frac{504}{259}$	c) $\frac{450}{263}$ d) none of these
3) The expression $\left(x + \left(x^3 - 1\right)^{\frac{1}{2}}\right)^5 + \left(x - 2\text{Marks}\right)$	$(x^3 - 1)^{\frac{1}{2}}$ is a polynomial of degree (1992-
a) 5	c) 7
b) 6	d) 8
4) If in the expansion of $(1 + x)^m (1 - x)^n$, the coefficients of x and x^2 are 3 and x^2 are 4 and x^2 are 5 and	
a) 6	c) 12
b) 9	d) 24
5) For $2 \le r \le n$, ${}^{n}C_{r} + 2 {}^{n}C_{r-1} + {}^{n}C_{r-2} = 0$	= (2000S)
a) $^{n+1}C_{r-1}$ b) $2^{n+1}C_{r+1}$	c) $2^{n+2}C_r$ d) $^{n+2}C_r$
6) In the binomial expansion of $(a - b)^n$, zero. Then a/b equals	$n \ge 5$, the sum of the 5 th and 6 th terms is (2001S)
a) $\frac{n-5}{6}$ b) $\frac{n-4}{5}$	c) $\frac{5}{n-4}$ d) $\frac{6}{n-5}$

7) The sum $\sum_{i=0}^{9} {}^{10}C_i{}^{20}C_{m-i}$, (where ${}^{p}C_q = 0$ if p < q) is maximum when m is (2002S)



D.MCQs with One or More than One Correct

1) If c_r stands for nC_r , then the sum of the series $\frac{2(\frac{n}{2}!)(\frac{n}{2}!)}{n!} \left[C_0^2 - 2C_1^2 + 3C_2^2 - \dots + (-1)^n (n+1) C_n^2 \right], \text{ where n is an even positive integer is equal to}$ (1992-2Marks)

a) 0 d) $(-1)^n n$ b) $(-1)^{\frac{n}{2}}(n+1)$ e) none of these c) $(-1)^{\frac{n}{2}}(n+2)$

2) If
$$a_n = \sum_{r=0}^n \frac{1}{{}^nC_r}$$
, then $\sum_{r=0}^n \frac{r}{{}^nC_r}$ equals (1998-2Marks)

- a) $(n-1) a_n$
- b) na_n

- c) $\frac{1}{2}na_n$ d) None of The above