

12. The coefficient of x^n in the polynomial $(x + {}^nC_0)(x + 3{}^nC_1)(x + 5{}^nC_2) \dots (x + (2n + 1){}^nC_n)$ is
 (A) $n2^n$ (B) $n2^{n+1}$
 (C) $(n + 1)2^n$ (D) $n2^n + 1$
13. Value of $\sum_{r=0}^{2n} r \binom{2n}{r} \cdot \frac{1}{r+2}$ is equal to
 (A) $\frac{2^{n+1}(2n^2 - n + 1) - 2}{(2n+1)(2n+2)}$ (B) $\frac{2^{2n+1}(2n^2 + n - 1) + 2}{(2n+1)(2n+2)}$
 (C) $\frac{2^{2n+1}(2n^2 + 2n - 1)}{(2n+1)(2n+2)}$ (D) None of these
14. If $R = (5\sqrt{3} + 8)^{2n+1}$ and $f = R - [R]$; where $[\cdot]$ denotes G. I. F., then $R \cdot f$ is equal to
 (A) 11^{2n} (B) 11^{2n-1}
 (C) 11^{2n+1} (D) 11
15. Value of $\sum_{0 \leq i < j \leq n} \binom{n}{i} + \binom{n}{j}$ is
 (A) $n \cdot 2^n C_n + 2^{2n}$ (B) $(n+1)^{2n} C_n + 2^{2n}$
 (C) $(n-1)^{2n} C_n - 2^{2n}$ (D) $(n-1)^{2n} C_n - 2$
16. The remainder when 7^{103} is divided by 25 is
 (A) 0 (B) 18
 (C) 16 (D) 9
17. The number $101^{100} - 1$ is divisible by
 (A) 10 (B) 10^2
 (C) 10^3 (D) 10^4
18. Integral part of $(5\sqrt{5} + 11)^{2n+1}$ is
 (A) Even (B) Odd
 (C) Neither (D) Can't Say
19. Let $f(n) = 10^n + 3 \cdot 4^{n+2} + 5$; $n \in N$. The greatest value of the integer which divides $f(n)$ for all 'n' is
 (A) 27 (B) 9
 (C) 3 (D) None
20. If $\sum_{r=0}^n \left(\frac{r+2}{r+1} \right)^n C_r = \frac{2^8 - 1}{6}$, then 'n' is
 (A) 8 (B) 4
 (C) 6 (D) 5