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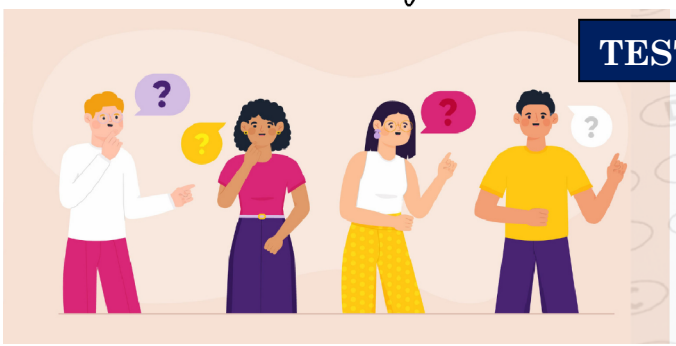

TEST-07

MULTIPLE CHOICE TYPE QUESTIONS

For 2025 Exams - Mathematics (041) - Class 11

☑ ***Select the correct option in the followings. Each question carries 1 mark.***

01. The sixth term in the binomial expansion of $\left[2x-\frac{1}{3x}\right]^{10}$; $x \neq 0$ is

(a) ${}^{10}C_4\frac{2^4}{3^4}$ (b) $-{}^{10}C_5\frac{2^5}{3^5}$ (c) $-{}^{10}C_4\frac{2^4}{3^5}$ (d) ${}^{10}C_5\frac{2^5}{3^5}$

02. When $2^{4n}-15n$, for all $n \in Z^+$ is divided by 225, then the remainder will be

(a) 0 (b) 1 (c) 2 (d) 3

03. The coefficient of x^n in the binomial expansion of $(x^2+2x)^{n-1}$ is

(a) $(n-1)\times 2^{(n-2)}$ (b) $(n-1)\times 2^{(n-1)}$ (c) $(n-1)\times 2^n$ (d) $n\times 2^{(n-1)}$

04. The coefficient of $\left(\frac{1}{x^3}\right)$ in the expansion of $\left[x-\frac{m}{x}\right]^{11}$; $x \neq 0$ is

(a) $-924\,m^7$ (b) $-792\,m^5$ (c) $-792\,m^6$ (d) $-330\,m^7$

05. In the expansion of $\left[x^2-\frac{1}{3x}\right]^9$; $x \neq 0$ the term without x is equal to

(a) $-\frac{243}{28}$ (b) $-\frac{28}{243}$ (c) $\frac{28}{243}$ (d) $\frac{28}{81}$

06. In the expansion of $(1-x)^{20}$, the binomial coefficients of r^{th} and $(r+4)^{th}$ terms are equal, then

(a) $r=7$ (b) $r=8$ (c) $r=9$ (d) $r=10$

07. The total number of terms in expansion of $(x+a)^{100}+(x-a)^{100}$ after simplification is

(a) 202 (b) 51 (c) 50 (d) 101

08. The middle term in the expansion of $\left[\frac{2x}{3}-\frac{3}{2x^2}\right]^{2n}$; $x \neq 0$ is

(a) $(-1)^n\times {}^{2n}C_n x^n$ (b) $(-1)^n\times {}^{2n}C_n x^{-n}$ (c) ${}^{2n}C_n x^{-n}$ (d) $(-1)\times {}^{2n}C_n$

09. If the coefficients of x^2 and x^3 in the expansion of $(3+ax)^9$ are the same, then $a=$

(a) $-\frac{9}{7}$ (b) $-\frac{7}{9}$ (c) $\frac{7}{9}$ (d) $\frac{9}{7}$

10. Given the integers $r>1$, $n>2$, and coefficients of $(3r)^{th}$ and $(r+2)^{nd}$ terms in the binomial expansion of $(1+x)^{2n}$ are equal, then

(a) $n=2r+1$ (b) $n=3r$ (c) $n=2r$ (d) $n=r+1$

11. The total number of terms in the expansion of $(1+a)^{35}+(1-a)^{35}$ after simplification is

(a) 72 (b) 36 (c) 18 (d) 17

12. The two successive terms in the expansion of $(1+x)^{24}$ whose coefficients are in the ratio 1:4 are
(a) 3^{rd} and 4^{th} (b) 4^{th} and 5^{th} (c) 5^{th} and 6^{th} (d) 6^{th} and 7^{th}

13. If the coefficients of 2^{nd}, 3^{rd} and the 4^{th} terms in the expansion of $(1+x)^n$ are in A.P., then value of n is
(a) 2 (b) 7 (c) 11 (d) 14

14. If A and B are coefficient of x^n in the expansions of $(1+x)^{2n}$ and $(1+x)^{2n-1}$ respectively, then $\left(\frac{A}{B}\right)$ equals
(a) 1 (b) 2 (c) $\frac{1}{2}$ (d) $\frac{1}{n}$

15. Total no. of terms in the binomial expansion of $(1-x)^{25}$ is
(a) 25 (b) 24 (c) 26 (d) 13

16. Total no. of positive terms in the binomial expansion of $(1-x)^{51}$ is
(a) 52 (b) 26 (c) 51 (d) 13

17. Total no. of negative terms in the binomial expansion of $(1-x)^{52}$ is
(a) 52 (b) 53 (c) 27 (d) 26

18. In the binomial expansion of $(1-x)^{19}$, the coefficient of ninth term is
(a) $-{}^{19}C_8$ (b) ${}^{19}C_8$ (c) $-{}^{19}C_9$ (d) ${}^{19}C_9$

19. The coefficient of x in the expansion of $(1-3x+7x^2)(1-x)^{16}$ is
(a) –19 (b) 19 (c) –16 (d) 16

20. The coefficient of $\frac{1}{x^{17}}$ in the expansion of $\left(x^4-\frac{1}{x^3}\right)^{15}$; $x \neq 0$ is
(a) 1365 (b) 1635 (c) $-1365x^{-17}$ (d) –1365

21. If p is a real number and if the middle term in the expansion of $\left(\frac{p}{2}+2\right)^8$ is 1120, then
(a) $p=2$ (b) $p=-2$ (c) $p=\pm 2$ (d) $p=16$

22. The coefficient of x^6 in the expansion of $(x+3)^8$ is
(a) 28 (b) 252 (c) 63 (d) 242

23. The coefficient of x^5 in the expansion of $(1+2x)^6$ is
(a) 192 (b) 32 (c) 292 (d) –192

*Question numbers **24** and **25** are Assertion and Reason based questions. Two statements are given, one labelled **Assertion (A)** and the other labelled **Reason (R)**. Select the correct answer from the codes (a), (b), (c) and (d) as given below.*

(a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).
(b) Both Assertion (A) and Reason (R) are true and Reason (R) is **not** the correct explanation of Assertion (A).
(c) Assertion (A) is true but Reason (R) is false.
(d) Assertion (A) is false but Reason (R) is true.

24. **Assertion (A) :** Fifth term from end in the expansion of $(x+y)^{17}$ is ${}^{17}C_4\, y^{13}x^4$.

Reason (R) : The $(r+1)^{th}$ term from end in the binomial expansion of $(x+y)^n$ is same as the $(r+1)^{th}$ term from the beginning in the expansion of $(y+x)^n$.

25. **Assertion (A) :** Sum of the binomial coefficients in the expansion of $(x+y)^8$ is 512.

Reason (R) : ${}^nC_0 + {}^nC_1 + {}^nC_2 + {}^nC_3 + ... + {}^nC_n = 2^n$.

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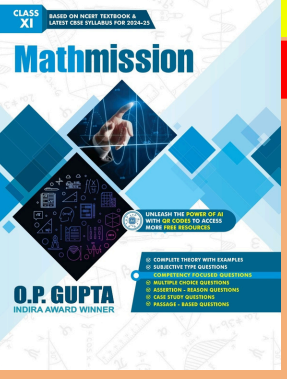

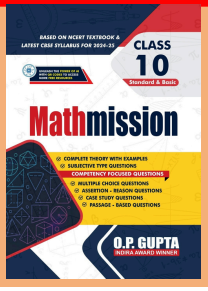

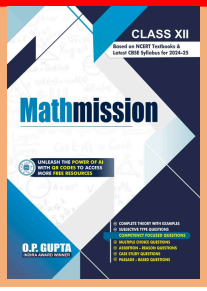

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