

PART 1 - MATHEMATICS

Topic : Binomial theorem

SECTION-1 : (Maximum Marks : 4)

- This section contains **ONE** question.
- Each question has **FOUR** options (A), (B), (C) and (D). **ONE OR MORE THAN ONE** of these four option(s) is(are) correct answer(s).
- For each question, choose the option(s) corresponding to (all) the correct answer(s).
- Answer to each question will be evaluated according to the following marking scheme :

Full Marks	: +4	ONLY if (all) the correct option(s) is(are) chosen;
Partial Marks	: +3	If all the four options are correct but ONLY three options are chosen;
Partial Marks	: +2	If three or more options are correct but ONLY two options are chosen, both of which are correct;
Partial Marks	: +1	If two or more options are correct but ONLY one option is chosen and it is a correct option;
Zero Marks	: 0	If none of the options is chosen (i.e. the question is unanswered);
Negative Marks	: -2	In all other cases.
- For example, in a question, if **(A), (B) and (D)** are the ONLY three options corresponding to correct answers, then choosing ONLY (A), (B) and (D) will get +4 marks; choosing ONLY (A) and (B) will get +2 marks; choosing ONLY (A) and (D) will get +2 marks; choosing ONLY (B) and (D) will get +2 marks; choosing ONLY (A) will get +1 mark; choosing ONLY (B) will get +1 mark; choosing ONLY (D) will get +1 mark; choosing no option (i.e. the question is unanswered) will get 0 marks; and choosing any other combination of options will get -2 marks.

1. Let R denote the set of all real numbers. Consider the polynomial function $f : R \rightarrow R$ defined by

$$f(x) = \frac{d^{10}}{dx^{10}}((x^2 - 1)^{10}), \quad \text{for all } x \in R.$$

Here $\frac{d^{10}}{dx^{10}}((x^2 - 1)^{10})$ is the 10th order derivative of the function $(x^2 - 1)^{10}$.

Then which of the following statements is (are) TRUE ?

[JEE Advanced 2026 Paper 2]

- (A) The coefficient of x^8 in the polynomial $f(x)$ is $(-10)\left(\frac{18!}{8!}\right)$
- (B) The value of $f(1) + f(-1)$ is equal to $10! \cdot 2^{11}$
- (C) The degree of the polynomial $f(x)$ is 10
- (D) The constant term of the polynomial $f(x)$ is $-\left(\frac{10!}{5!}\right)$

Scan or tap for the
full solution



Space for Rough Work

JEE ADVANCED BINOMIAL THEOREM — GENERAL TERM
AND MIDDLE TERMS — PYQS

Test Pattern : JEE (Advanced)

ANSWER KEY

SECTION-1

Ques.	1																
Ans.	A, B, C																