1. Set of value of r for which, ${}^{18}C_{r-2} + 2.\ {}^{18}C_{r-1} + {}^{18}C_r \geq {}^{20}C_{13}$ contains

(A) 4 element (B) 5 elements (C) 7 elements (D) 10 elements

2. The number of values of 'r' satisfying the equation, ${}^{39}C_{3r-1} - {}^{39}C_{r^2} = {}^{39}C_{r^2-1} - {}^{39}C_{3r}$ is

(A) 1 (B) 2 (C) 3 (D) 4

3. In the expansion of $\left(\frac{x+1}{x^{2/3}-x^{1/3}+1} - \frac{x-1}{x-x^{1/2}}\right)^{10}$, the term which does not contain x is

(A) ${}^{10}C_0$ (B) ${}^{10}C_7$ (C) ${}^{10}C_4$ (D) none

4 If the second, third and fourth terms in the expansion of $(a + b)^n$ are 135, 30 and 10/3 respectively, then

(A) a = 3 (B) b = 1/3 (C) n = 5 (D) all are correct

5. The coefficient of the term independent of x in the expansion of $(1 + x + 2x^3)\left(\frac{3}{2}x^2 - \frac{1}{3x}\right)^9$, is

(A) $\frac{1}{3}$ (B) $\frac{19}{54}$ (C) $\frac{17}{54}$ (D) $\frac{1}{4}$

6. The number of irrational terms in the expansion of $(5^{1/6} + 2^{1/8})^{100}$ is

(A) 96 (B) 97 (C) 98 (D) 99

7. The sum of the rational terms of $(2^{1/5} + \sqrt{3})^{20}$ is

(A) 71 (B) 85 (C) 97 (D) None of these

8. The sum of the binomial coefficients of $\left[2x + \frac{1}{x}\right]^n$ is equal to 256. The constant term in the expansion is

(A) 1120 (B) 2110 (C) 1210 (D) none

9. In the expansion of $\left(3^{-\frac{x}{4}} + 3^{\frac{5x}{4}}\right)^n$ the sum of the binomial coefficients is 64 and the term with the greatest binomial coefficient exceeds the third term by (n–1), then the value of x must be

(A) 1 (B) 2 (C) 0 (D) –1

10. Number of rational terms in the expansion of $\left(\sqrt{2} + \sqrt[4]{3}\right)^{100}$ is

(A) 25 (B) 26 (C) 27 (D) 28

11. The term independent of 'x' in the expansion of $\left(9x - \frac{1}{3\sqrt{x}}\right)^{18}$, x > 0, is α times the corresponding binomial coefficient. Then 'α' is

(A) 3 (B) $\frac{1}{3}$ (C) $-\frac{1}{3}$ (D) 1

12. The coefficient of x^5 in the expansion of $(1 + x^2)^5 (1 + x)^4$ is

(A) 30 (B) 60 (C) 40 (D) None of these

13. The middle term in the expansion of $(x^2–2x)^{10}$ is

(A) ${}^{10}C_4\ x^{17}.2^4$ (B) $-{}^{10}C_5\ 2^5x^{15}$ (C) $-{}^{10}C_4\ 2^4.x^{17}$ (D) None of these

14. The middle term in the expansion of $(1–3x + 3x^2 – x^3)^6$ is

(A) ${}^{18}C_{10}\ x^{10}$ (B) ${}^{18}C_9\ (–x)^9$ (C) ${}^{18}C_9\ x^9$ (D) None of these

15. The middle terms of the expansion $\left(2a-\frac{a^2}{4}\right)^9$ is/ are

(A) $\frac{63}{4}a^{13}, -\frac{63}{32}a^{14}$ (B) $\frac{63}{4}a^{14}, -\frac{63}{32}a^{13}$ (C) $-\frac{63}{4}a^{13}, \frac{63}{32}a^{14}$ (D) None of these

16. If $6^{83} + 8^{83}$ is divided by 49, then the remainder is

(A) 35 (B) 5 (C) 1 (D) 0

17. The remainder, when $(15^{23} + 23^{23})$ is divided by 19, is

(A) 4 (B) 15 (C) 0 (D) 18

18. Last three digits of the number $N = 7^{100} – 3^{100}$ are

(A) 100 (B) 300 (C) 500 (D) 000

19. If $(1 + x – 3x^2)^{2145} = a_0 + a_1x + a_2x^2+\ldots\ldots$ then $a_0 – a_1 + a_2 – a_3 +\ldots\ldots$ ends with

(A) 1 (B) 3 (C) 7 (D) 9

20. The coefficient of x^{49} in the expansion of $(x – 1)\left(x-\frac{1}{2}\right)\left(x-\frac{1}{2^2}\right)\ldots\left(x-\frac{1}{2^{49}}\right)$ is equal to

(A) $-2\left(1-\frac{1}{2^{50}}\right)$ (B) $2\left(1-\frac{1}{2^{49}}\right)$

(C) $2\left(1-\frac{1}{2^{50}}\right)$ (D) $-2\left(1-\frac{1}{2^{49}}\right)$

Answers

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1.	(C)	**2.**	(B)	**3.**	(C)	**4.**	(D)	**5.**	(C)	**6.**	(B)	**7.**	(D)	**8.**	(A)	**9.**	(C)	**10.**	(B)
11.	(D)	**12.**	(B)	**13.**	(B)	**14.**	(B)	**15.**	(A)	**16.**	(A)	**17.**	(C)	**18.**	(D)	**19.**	(B)	**20.**	(A)