1. Exponential form of $a \times a \times a \times \ldots \times a$ (n times) is

(a) na (b) a^n (c) n^a (d) a^{2n}

2. The exponent in $\left(-\frac{1}{6}\right)^9$ is

(a) $\frac{1}{6}$ (b) $-\frac{1}{6}$ (c) -6 (d) 9

3. $4^3 \times a \times a \times a \times a =$

(a) $64a^4$ (b) $8^2 \times a^4$ (c) $2^6 \times a^4$ (d) All of these

4. Reciprocal of $(-3)^{-5}$ is

(a) $-1/125$ (b) $-1/243$ (c) -243 (d) 125

5. Which is greater $(-1)^{101}$ or 1^{-101} ?

(a) $(-1)^{101}$ (b) 1^{-101} (c) Both are equal (d) Can't be determined

6. $\left(5^{-1}-4^{-1}\right)^{-1}-\left(3^{-1}-2^{-1}\right)^{-1} =$

(a) -26 (b) -14 (c) $1/26$ (d) $-1/14$

7. $\left(7^{-1} \times 6^{-1} \div 4^{-1}\right)^{-2} =$

(a) $-21/2$ (b) $2/21$ (c) $2/84$ (d) $441/4$

8. $\frac{1}{1+x^{-1}}+\frac{1}{1+x} =$

(a) x (b) $1/x$ (c) 1 (d) $1/(1+x)$

9. $-\frac{81}{16} =$

(a) $-\left(\frac{2}{3}\right)^{-4}$ (b) $\left(-\frac{3}{2}\right)^4$ (c) $\left(-\frac{2}{3}\right)^4$ (d) $-\left(\frac{2}{3}\right)^4$

10. $\left(4q^{-2}\right)^{-2} =$

(a) $\frac{16}{q^4}$ (b) $\frac{q^4}{16}$ (c) $\frac{q^2}{2}$ (d) $\frac{1}{16q^4}$

11. $\frac{a^{-2}b^{-3}c^{-5}}{a^3b^{-2}c^4} =$

(a) $\frac{c^9}{a^5b}$ (b) $\frac{a^5b}{c^9}$ (c) $\frac{1}{a^5bc^9}$ (d) $\frac{b}{a^5c^9}$

12. If $\left(\frac{3}{7}\right)^{2x} \times \left(\frac{3}{7}\right)^{-11} = \left(\frac{7}{3}\right)^{-3}$, then $x =$

(a) –8 (b) –6 (c) 8 (d) 16

13. $\left(4^6 + 8^3\right) \times 2^{-12} =$

(a) –81 (b) $1/512$ (c) $1/8$ (d) 32

14. $\frac{72x^4y^5z^7}{12x^2y^3z^{-5}} =$

(a) $12x^2y^2z^2$ (b) $\frac{6x^2y^2}{z^2}$ (c) $6x^2y^2z^{12}$ (d) $\frac{x^2y^2}{6z^{12}}$

15. If $p^{(a+b)} \times p^{(b+c)} \times p^{(c+a)} = \left(\frac{1}{p}\right)^{-y}$, then $y =$

(a) $-(a+b+c)$ (b) 0 (c) 1 (d) $2(a+b+c)$

16. $\left(6^{12} \div 3^{18}\right)^{-1} \div 2^{-4} =$

(a) $3^6 \times 2^8$ (b) $2^8 / 3^6$ (c) $3^6 / 2^8$ (d) $2^6 \times 3^8$

17. If $(-4/9)^3$ is divided by $(-8/27)^2$, then the quotient is

(a) $-2/3$ (b) $3/2$ (c) 1 (d) –1

18. Usual form of 7.63×10^{-4} is

(a) 0.763 (b) 0.000763 (c) 0.0763 (d) 763

19. The standard form of $3045 \div 100000000$ is

(a) 3.045×10^{-1} (b) 3.045×10^{-5} (c) 3.045×10^{-2} (d) 3045×10^4

20. The standard form of $(3/10)^6$ is

(a) 7.29×10^{-6} (b) 7.29×10^{-4} (c) 0.729×10^{-5} (d) 729×10^{6}

21. The average diameter of a blood cell is $197.38\times10^{-5}\,mm$. Write the size of the cell (in mm) in standard form.

(a) 0.0019738 (b) 0.0000019738 (c) 19738×10^{-7} (d) 1.9738×10^{-3}

22. The standard form of number of seconds in a week is

(a) 6.048×10^{5} (b) 8.6400×10^{4} (c) 1.008×10^{5} (d) None of these

23. In $2^n, n$ is known as

(a) Base (b) Constant (c) Exponent (d) Variable

24. 3^{-2} can be written as

(a) 3^2 (b) $1/3^2$ (c) $1/3^{-2}$ (d) $-2/3$

25. The value of $3^5 \div 3^{-6}$ is

(a) 3^5 (b) 3^{-6} (c) 3^{11} (d) 3^{-11}

26. The multiplicative inverse of 10^{-100} is

(a) 10 (b) 100 (c) 10^{100} (d) 10^{-100}

27. The multiplicative inverse of $\left(-\frac{5}{9}\right)^{-99}$ is

(a) $\left(-\frac{5}{9}\right)^{99}$ (b) $\left(\frac{5}{9}\right)^{99}$ (c) $\left(\frac{9}{-5}\right)^{99}$ (d) $\left(\frac{9}{5}\right)^{99}$

28. If y be any non–zero integer, then y^0 is equal to

(a) 1 (b) 0 (c) –1 (d) Not defined

29. If x be any integer different from zero and m be any positive integer, then x^{-m} is equal to

(a) x^m (b) $-x^m$ (c) $1/x^m$ (d) $-1/x^m$

30. Which of the following is equal to $\left(-\frac{3}{4}\right)^{-3}$?

(a) $\left(\frac{3}{4}\right)^{-3}$ (b) $-\left(\frac{3}{4}\right)^{-3}$ (c) $\left(\frac{4}{3}\right)^{3}$ (d) $\left(-\frac{4}{3}\right)^{3}$

31. $(-7/5)^{-1}$ is equal to

(a) $5/7$ (b) $-5/7$ (c) $7/5$ (d) $-7/5$

32. For a non–zero integer $x, x^7 \div x^{12}$ is equal to

(a) x^5 (b) x^{19} (c) x^{-5} (d) x^{-19}

33. The value of $\left(7^{-1}-8^{-1}\right)^{-1}-\left(3^{-1}-4^{-1}\right)^{-1}$ is

(a) 44 (b) 56 (c) 68 (d) 12

34. The standard form for 234000000 is

(a) 2.34×10^8 (b) 0.234×10^9 (c) 2.34×10^{-8} (d) 0.234×10^{-9}

35. The usual form for 2.03×10^{-5} is

(a) 0.203 (b) 0.00203 (c) 203000 (d) 0.0000203

36. $\left(\frac{3}{4}\right)^5 \div \left(\frac{5}{3}\right)^5$ is equal to

(a) $\left(\frac{3}{4}\div\frac{5}{3}\right)^5$ (b) $\left(\frac{3}{4}\div\frac{5}{3}\right)^1$ (c) $\left(\frac{3}{4}\div\frac{5}{3}\right)^0$ (d) $\left(\frac{3}{4}\div\frac{5}{3}\right)^{10}$

37. For a non–zero rational number $p, p^{13} \div p^8$ is equal to

(a) p^5 (b) p^{21} (c) p^{-5} (d) p^{-19}

38. Cube of $-1/2$ is

(a) $1/8$ (b) $1/16$ (c) $-1/8$ (d) $-1/16$

Codes:

(a) If both Statement I and Statement II are true and Statement II is the correct explanation of Statement I.

(b) If both Statement I and Statement II are true but Statement II is not the correct explanation of Statement I.

(c) If statement I is true but Statement II is false.

(d) If statement I is false but Statement II is true.

39. **Statement–I:** In any exponential form, say a^{-n} $(a \neq 0), n$ is the base.

Statement–II: The number which is multiplied as many times as that of the power is said to be base.

40. **Statement–I:** $\left(2^{-1}\times6^{-1}\right)^{-1}\div8^{-1}=80$

Statement–II: If m and n are two integers and $n>m$, then $x^m \div x^n = x^{m-n}$

41. **Statement-I:** $\frac{1}{1-a^b}-\frac{1}{a^{-b}-1}=1$

Statement-II: $a^{-m}=\frac{1}{a^m}$

42. **Statement–I:** $(-1/2)^5\times(-1/2)^{-3}=(-1/2)^2$

Statement–II: $x^n\times y^{-n}=(xy)^{-n}$

43. **Statement–I:** $\left\{(-1/2)^{-2}\right\}^{-2}=1/16$

Statement–II: $\left(x^m\right)^n=x^{m\times n}$, for any value of x.

44. **Statement–I:** The product of 3.2×10^6 and 4.1×10^{-1} in the standard form is 1.312×10^6.

Statement–II: Very small numbers can be expressed in the standard form using positive exponents.

ANSWERS

1. B	2. D	3. D	4. C
5. B	6. B	7. D	8. C
9. A	10. B	11. C	12. C
13. B	14. C	15. D	16. C
17. D	18. B	19. B	20. B
21. D	22. A	23. C	24. B
25. C	26. C	27. A	28. A
29. C	30. D	31. B	32. C
33. A	34. A	35. D	36. A
37. A	38. C	39. D	40. D
41. A	42. C	43. A	44. C