**IX Class**

# EXPONENTS

## EXERCISES – 1 & 2

**I. One mark questions :**

1. Express 1296 in exponential form.
2. Find the value of $(2.5)^3 - (1.5)^3$.
3. Simplify $\left(\frac{x^{2-3n}.x^{4+3n}}{x^3}\right)^2$
4. If a =3 , b = 5 find the value of $a^b - b^a$
5. Solve: $8^{x+2} = 2^{4x-3}$.
6. If $2^n = 64$ then find the value of $2^{2n+1}$.
7. Simplify $(x^{m+n})^{m-n}. (x^{n+p})^{n-p}. (x^{p+m})^{p-m}$
8. Simplify $\left(\frac{x^l}{x^m}\right)^n.\left(\frac{x^m}{x^n}\right)^l.\left(\frac{x^n}{x^l}\right)^m$
9. Find the $6^{th}$ root of 729.
10. Find the value of $\left(\frac{32}{243}\right)^{-3/5}$.
11. Find the value of $(0.027)^{-2/3}$.
12. Find the value of $\frac{25}{\sqrt{3}}\left(\sqrt{3}=1.732\right)$.
13. Simplify : $\left(\frac{1}{4ab^2c}\right)^2 \div \left(\frac{3}{2a^2bc^2}\right)^4$.
14. Simplify : $\frac{\left(5x^7\right)^3\left(10x^2\right)^2}{\left(2x^6\right)^2}$.

**II. Choose the correct answer:**

15. x.x..x..x……n times is written as [ ]

a)xn b)$x^n$ c)$n^x$ d) $x/n$

16. $\frac{x^m}{x^n} =$ [ ]

a) $x^{m+n}$ b) $x^{m-n}$ c) $x^0$ d) $x^{mn}$

17. $a^{-m} =$ [ ]

a) $\frac{1}{a^m}$ b) $\frac{1}{a^{-m}}$ c) $\frac{a}{m}$ d) $\frac{1}{am}$

18. If a = 3 then $5^a =$ [ ]

a) 243 b)81 c)125 d)625

19. $(-1)^{-200} =$ [ ]

a) 1 b) -1 c)200 d)-200

20. The radical form of $(-3)^{1/5}$ [ ]

a) $(-5)^3$ b) $\sqrt[5]{-3}$ c) $\sqrt[3]{-5}$ d) $\sqrt[5]{-243}$

21. $\sqrt{-25} =$ [ ]

a) -5 b) +5 c)both a and b d)does not exit

22. $\sqrt[4]{a^8 b^{-4}} =$ [ ]

a) $\frac{a}{b^2}$ b) $\frac{a^2}{b}$ c) $a^2 b$ d) $ab^2$

23 Cube root of 64 [ ]

a)3 b)16 c)4 d)32

24. $\sqrt[n]{a^m} =$ [ ]

a) $a^{mn}$ b) $a^{n/m}$ c) $a^{m/n}$ d) $a^{M\_n}$

**III. Fill in the blanks:**

25. $m^2 . m^5 =$ _____

26. $\frac{a^n}{b^n} =$ _____

27. If a = 3, b =2 then $2(b^3 - a) =$ _____

28. $(2^3)^{5/3} =$ _____

29. $(0.027)^{1/3} =$ _____

30. $(-1)^n =$ _____(n is odd number )

31. $(a^2 b^3)^3 =$ _____

32. $(-n^2)^2 . (-n^2)^3 =$ _____

33. $\left(\frac{x^2}{2y}\right)^0$ =_____

34. $(ab)^m$ =_____

**IV. Matching :**

| | **Group –A** | | **Group –B** |
|---|---|---|---|
| 35. | $(a^m)^n$ | [ ] | A. $a^m/b^m$ |
| 36. | $\sqrt[n]{a^m}$ | [ ] | B. $a^{m+n}$ |
| 37. | $\left(a/b\right)^m$ | [ ] | C. $a^m b^m$ |
| 38. | $(ab)^m$ | [ ] | D. $a^0$ |
| 39. | $a^m \times a^n$ | [ ] | E. $a^{mn}$ |
| | | | F. $a^{m-n}$ |
| | | | G. $a^{m/n}$ |

| **II.** | **Group -A** | | **Group –B** |
|---|---|---|---|
| 40. | $(0.001)^{2/3}$ | [ ] | A. 864 |
| 41. | $\sqrt[4]{625}$ | [ ] | B. 1 |
| 42 | $\sqrt{3^4} - \sqrt{2^2}$ | [ ] | C. 0.1 |
| 43. | $\sqrt{2^{10}.3^6}$ | [ ] | D. 5 |
| 44. | $x^{m-n}. x^{n-p}. x^{p-m}$ | [ ] | E. 0.01 |
| | | | F. 648 |
| | | | G. 7 |