Chapter—12

Exponents and Power

1. Complete the following.

(a) The value of 3^4 = ...

(b) $125° + 5^2$ = ...

(c) Multiplicative inverse of 2^{-5} = ...

(d) $11^4 \times 11^{-2}$ = ...

(e) $\frac{1}{7^{-4}}$ = ...

2. Write 1723.56 in expanded form using exponents.

3. Find the value of $4^5 \times 2^3 \times 2^{-6}$ in exponents.

4. Simplify and express the result in power notation with positive exponents.

(a) $\left(\frac{1}{3}\right)^{-5} \times \left(\frac{1}{3}\right)^4 \times (3)^{-2}$ (b) $\left(\frac{3}{7}\right)^4 \times \left(\frac{7}{3}\right)^2 \times \left(\frac{1}{7}\right)^{-2}$

(c) $(5^{-2} \div 5^{-8}) \times 5^{-6}$ (d) $(13° + 4^{-3}) \times 8^2$

5. Simplify: $(3)^{-5} \times \left(\frac{1}{3}\right)^2 \times \left(\frac{1}{3}\right)^{-8}$

6. Write 'True' or 'False' for the following statements

(a) $\left(\frac{3}{11}\right)^{-2}$ is a whole number. (b) $\left(\frac{2}{9}\right)^{-2} \times \left(\frac{9}{2}\right)^2 = 1$

(c) $\left[(a)^{-m}\right]^{-n} = a^{mn.}$ (d) 327900000 = $(3.279) \times 10^8$.

7. Simplify: $\left[\left(\frac{2}{7}\right)^{-2}\right]^4 \times \left[\left(\frac{7}{2}\right)^4\right]^{-2}$

8. If $3^x = 243$, then find the value of x.

9. Simplify : $\frac{5^{-3} \times 6^{-5} \times 81 \times 4}{3^{-7} \times 10^{-3}}$

10. What is the multiplicative inverse of $(64)^{-2/3} \times \left(\frac{1}{4}\right)^{-3}$

11. Find the value of $a^2 b^3$ if $a = 5$, $b = -2$

12. Find the value of x if : $(-3)^{3x+1} \times (-3)^4 = (-3)^8$

13. Distance of moon from Earth is 384, 467, 000 m. Write it in scientific notation.

14. Express 4.21678×10^7 in usual form.

15. Express the height of bundle of 500 papers placed on each other if thickness of one paper is 0.0016 cm.