Subject: - Mathematics **PRACTICE PAPER** **CBSE-7th**

Topic: - Exponents & Powers

1. Find the value of each of the following: -

a) $(-3)^4$ b) $2^2 \times 5^3$ **Ans.** $a = 81, b = 500$

2. Simplify: -

a) $(-2)^5 \times (-10)^2$ b) $\left(\frac{3}{4}\right)^2$ **Ans.** $a = -3200, b = \frac{9}{16}$

3. Identify the greater no. in each of the following: -

a) 3^5 *or* 5^3 **Ans.** 3^5

4. Express each of the following in exponential form. **Ans.** $a = \left(\frac{4}{3}\right)^5, b = \left(\frac{-2}{3}\right)^2 \times x^3, c = 3^6$

a) $\frac{4}{3} \times \frac{4}{3} \times \frac{4}{3} \times \frac{4}{3} \times \frac{4}{3}$ b) $\left(-\frac{2}{3}\right) \times \left(-\frac{2}{3}\right) \times x \times x \times x$ c) 729

5. Express each of the following no.'s as a product of powers of their prime factors: -

a) 675 b) 36 c) 24000 **Ans.** $a = (3)^3 \times (5)^2, b = (2)^2 \times (3)^2, c = (2)^6 \times (3)^1 \times (5)^3$

6. Express each of the following as a rational no. of the form $\frac{p}{q}$.

a) $\left(\frac{3}{7}\right)^2$ b) $\left(-\frac{2}{3}\right)^4$ **Ans.** $a = \frac{9}{49}, b = \frac{16}{81}$

7. Express each of the following rational no.'s in power notation.

a) $\frac{49}{64}$ b) $-\frac{1}{216}$ **Ans.** $a = \left(\frac{7}{8}\right)^2, b = \left(-\frac{1}{6}\right)^3$

8. Find the value: -

a) $\left(\frac{-3}{5}\right)^4 \times \left(\frac{4}{9}\right)^4 \times \left(\frac{-15}{18}\right)^2$ **Ans.** $a = \frac{64}{18225}$

9. If $a = 2$ *and* $b = 3$ then, find the value of: -

a) $\left(\frac{a}{b} \times \frac{b}{a}\right)^a$ b) $(ab)^b$ **Ans.** $a = 1, b = 216$

10. Using laws of exponents, simplify and write the answer in exponential form: -

a) $5^{12} \div 5^3$ b) $(5^{21} \div 5^{13}) \times 5^7$ **Ans.** $a = (5)^9, b = (5)^{15}$

11. Simplify and express each of the following in exponential form: -

a) $\frac{5^4 \times x^{10} y^5}{5^4 \times x^7 y^4}$ b) $\{(2^3)^4 \times 2^8\} \div 2^{12}$ **Ans.** $a = x^3 y^1, b = (2)^8$

12. Write $9 \times 9 \times 9 \times 9 \times 9$ in exponential form with base 3. **Ans.** $(3)^{10}$

13. Simplify: - a) $\frac{(16)^7\times(25)^5\times(81)^3}{(15)^7\times(24)^5\times(80)^3}$ **Ans. 2**

14. Find the value of n: -

a) $7^{2n+1} \div 49 = 7^3$ **Ans. 2**

15. If $\frac{9^n\times3^2\times3^n-(27)^n}{[(3)^3]^5\times2^3} = \frac{1}{27}$. Find the value of n **Ans. 4**

16. Express the following no.'s in the standard form: -

a) 723×10^9 b) 5,00,00,000 c) Diameter of the earth is 1,27,56,000 metres.

Ans. $a = 7.23 \times 10^{11}, b = 5.0 \times 10^7, c = 1.2756 \times 10^7 m$

17. Write the following no.'s in the usual form: -

a) 3.21×10^5 **Ans. 321000**

18. Write the following no.'s in the expanded exponential forms.

a) 5004132 **Ans. $5 \times 10^6 + 4 \times 10^3 + 1 \times 10^2 + 3 \times 10^1 + 2 \times 10^0$**

19. Find the no. from each of the following expanded forms: -

a) $9 \times 10^5 + 5 \times 10^2 + 3 \times 10^1$ **Ans. 900530**

20. Solve: -

a) $(6^{-1} - 8^{-1})^{-1}$ **Ans. 24**