STANDARD 8TH: CHAPTER 3

Indices and cube root

Q.1) Choose the correct option.

1. Value of $\left(\frac{512}{64}\right)^{-\frac{2}{3}} \times \left(\frac{1000}{729}\right)^{-\frac{1}{3}}$
   a) $\frac{40}{9}$
   b) $\frac{9}{40}$
   c) $\frac{-9}{40}$
   d) $\frac{-40}{9}$

2. State true or false:
   $(r+s)^{-1} \cdot (r^{-1}+s^{-1}) = \frac{1}{rs}$
   a) True
   b) False

3. Find the value of x if $9^{x-1} \times \left(\frac{1}{3}\right)^{5-2x} = \left(\frac{1}{3}\right)^{-3x}$
   a) 6
   b) 5
   c) 7
   d) 9

4. Another way of writing $(5x^{-3}yz^2)^{-2}$ *is*
   a) $\frac{4x^4}{9y^2z}$
   b) $\frac{x^2}{5y^2z^4}$
   c) $\frac{y^2}{x^6z^4}$
   d) $\frac{x^6}{25y^2z^4}$

5. State true or false: $x^3 \times x^2 = x^6$
   a) True
   b) False

6. If $3^{x-y} = 27$ and $3^{x+y} = 243$, then *y* is equal to:
   a) 7
   b) -1
   c) 4
   d) 3

7. $(256)^{0.16}$ x $(256)^{0.09}$ =?
   a) 2
   b) 4
   c) -4
   d) 1

8. Solve the expression $\frac{243^{\frac{n}{5}} \times 3^{2n+1}}{9^n \times 3^{n-1}}$
   a) 9
   b) -9
   c) 7
   d) -7

9. Which value of x satisfies the equation $\left(\sqrt{\frac{3}{10}}\right)^{x+3} = \frac{1000}{27}$
   a) 9
   b) -9
   c) 3
   d) -6

10. Which of the following is simplified form of $\frac{4^{n+4} - 32 \times 4^{n+1}}{8 \times 4^{n+2}}$
    a) -4
    b) 2
    c) 4
    d) 1

Q.2 Solve the following questions.

1. Simplify the expression $\frac{\sqrt[4]{144x^{20}y^{12}}}{\sqrt[3]{8000x^6y^{21}}}$

2. Find the value of $\left(\frac{a^n}{a^{-m}}\right)^{n-m} \times \left(\frac{a^l}{a^{-n}}\right)^{l-n} \times \left(\frac{a^m}{a^{-l}}\right)^{m-l}$

3. If $\sqrt{2} = 1.4 \; and \; \sqrt{3} = 1.7$ then find the value of $\sqrt{48} - \sqrt{12} + \sqrt{32}$

4. Find cube root of 32768

5. Solve $\frac{1}{1+a^{n-m}} + \frac{1}{1+a^{m-n}}$

6. If $x = 3 + 2\sqrt{2}$ then find the value of $\sqrt{x} - \frac{1}{\sqrt{x}}$.

7. If $1960 = 2^a \cdot 5^b \cdot 7^c$, calculate the value of $2^{-a} \cdot 7^b \cdot 5^{-c}$

8. Solve for x if $3^{x^2} : 3^x = 9 : 1$

9. If $a^x = b, b^y = c \; and \; c^z = a$ then prove that xyz=1

10. If $x^4y^2z^3$ = 49392, find the values of x, y and z, where x, y and z are different positive primes.