STD 9 Maths **Total Marks : 30**

Number system (DPP-3)

*** Choose the right answer from the given options. [1 Marks Each]** **[10]**

1. The value of $\left(\frac{12^{\frac{1}{5}}}{27^{\frac{1}{5}}}\right)^{\frac{5}{2}}$.

   (A) $\frac{12}{27}$ (B) $\frac{4}{9}$ (C) $\frac{2}{3}$ (D) None of these.

2. $\left(\frac{2}{3}\right)^{x}\left(\frac{3}{2}\right)^{2x} = \frac{81}{16}$ then x =

   (A) 2 (B) 3 (C) 4 (D) 1

3. The value of $2.\overline{45} + 0.\overline{36}$ is:

   (A) $\frac{67}{33}$ (B) $\frac{24}{11}$ (C) $\frac{31}{11}$ (D) $\frac{167}{110}$

4. If a, m, n are positive ingegers, then $\left\{\sqrt[m]{\sqrt[n]{a}}\right\}^{mn}$ is equal to

   (A) a^{nm} (B) a (C) $a^{\frac{m}{n}}$ (D) 1

5. Between any two rational numbers there.

   (A) Is no irrational number. (B) Is no rational number. (C) Are many rational numbers. (D) Are exactly two rational numbers.

6. The value of $\left\{(23+2^2)^{\frac{2}{3}} + (140-19)^{\frac{1}{2}}\right\}^2$, is:

   (A) 196 (B) 289 (C) 324 (D) 400

7. Which of the following is not equal to $\left[\left(\frac{5}{6}\right)^{\frac{1}{5}}\right]^{-\frac{1}{6}}$?

   (A) $\left(\frac{5}{6}\right)^{\frac{1}{5}}\frac{1}{6}$ (B) $\frac{1}{\left[\left(\frac{5}{6}\right)^{\frac{1}{5}}\right]^{\frac{1}{6}}}$ (C) $\left(\frac{6}{5}\right)^{\frac{1}{30}}$ (D) $\left(\frac{5}{6}\right)^{\frac{1}{30}}$

8. The decimal form of $\frac{2}{11}$ is:

   (A) $0.0\overline{18}$ (B) 0.18 (C) $0.\overline{18}$ (D) 0.018

9. If $x + \sqrt{15} = 4$, then $x + \frac{1}{x} =$

   (A) 2 (B) 4 (C) 8 (D) 1

10. The value of m for which $\left[\left\{\left(\frac{1}{7^2}\right)^{-2}\right\}^{-\frac{1}{3}}\right]^{\frac{1}{4}} = 7^m$, is:

    (A) $-\frac{1}{3}$ (B) $\frac{1}{4}$ (C) -3 (D) 2

*** Answer the following short questions. [2 Marks Each]** **[8]**

11. If a = 2, b = 3, find the values of:

$\left(a^a + b^b\right)^{-1}$

12. Find the value of x in the following:

$\sqrt[5]{5x+2} = 2$

13. Examine whether the following number are rational or irrational:

$\sqrt{8} + 4\sqrt{32} - 6\sqrt{2}$

14. Prove that:

$\frac{x^{a(b-c)}}{x^{b(a-c)}} \div \left(\frac{x^b}{x^a}\right)^c = 1$

*** Answer the following questions. [3 Marks Each]** **[12]**

15. Give two rational numbers lying between 0.232332333233332 and 0.212112111211112.

16. Evaluate:

$\left[5\left(8^{\frac{1}{3}} + 27^{\frac{1}{3}}\right)^3\right]^{\frac{1}{4}}$

17. Prove that:

$\frac{(x^{a+b})^2 (x^{b+c})^2 (x^{c+a})^2}{(x^a x^b x^c)} = 1$

18. Evaluate:

$\frac{4}{(216)^{-\frac{2}{3}}} + \frac{1}{(256)^{-\frac{3}{4}}} + \frac{2}{(243)^{-\frac{1}{5}}}$

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