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

1. On simplification, the expression $\frac{5^{n+2}-6\times5^{n+1}}{13\times5^n-2\times5^{n+1}}$ equals :
   (A) $\frac{5}{3}$ (B) $-\frac{5}{3}$ (C) $\frac{3}{5}$ (D) $-\frac{3}{5}$

2. $\frac{\sqrt{32}+\sqrt{48}}{\sqrt{8}+\sqrt{12}}$ is equal to :
   (A) $\sqrt{2}$ (B) 4 (C) 8 (D) 2

3. If $x=(7+4\sqrt{3})$ than $\left(x+\frac{1}{x}\right)=?$
   (A) 49 (B) 14 (C) 48 (D) $8\sqrt{3}$

4. Write the correct answer in the following:
   $\sqrt[4]{\sqrt[3]{2^2}}$ equals.
   (A) $2^{-\frac{1}{6}}$ (B) 2^{-6} (C) $2^{\frac{1}{6}}$ (D) 2^6

5. If $\sqrt{7}=2.646$ then $\frac{1}{\sqrt{7}}=?$
   (A) None of these. (B) 0.378 (C) 0.441 (D) 0.375

6. If $x=\sqrt{6}+\sqrt{5},$ then $x^2+\frac{1}{x^2}-2=$
   (A) $2\sqrt{6}$ (B) $2\sqrt{5}$ (C) 24 (D) 20

7. If $(3^3)^2 = 9^x$ than 5^x = ?
   (A) 5 (B) 1 (C) 125 (D) 25

8. The value of $\left(\frac{x^l}{x^m}\right)^{\frac{1}{lm}}\times\left(\frac{x^m}{x^n}\right)^{\frac{1}{mn}}\times\left(\frac{x^n}{x^l}\right)^{\frac{1}{nl}}$ is :
   (A) 4 (B) 1 (C) 2 (D) 0

9. The value of $\{5(8^{\frac{1}{4}}+27^{\frac{1}{3}})^3\}^{\frac{1}{4}}$ is :
   (A) 6 (B) 3 (C) 5 (D) 4

10. Which of the following is an irrational number ?
    (A) 3.14 (B) 3.141414... (C) 3.14444 (D) 3.141141114...

*** Answer the following short questions. [2 Marks Each]** [6]

11. Find six rational numbers between 3 and 4.

12. Show that 0.2353535... = $0.2\overline{35}$, can be expressed in the form $\frac{p}{q}$, where p and q are integers and $q \neq 0$.

13. Rationalise the denominator of $\frac{5}{\sqrt{3}-\sqrt{5}}$

*** Answer the following questions. [3 Marks Each]** [9]

14. It being given that $\sqrt{2}=1.414, \sqrt{3}=1.732, \sqrt{5}=2.236$ and $\sqrt{10}=3.162,$ find the value of three places of decimals, of the following:
    $\frac{\sqrt{10}-\sqrt{5}}{\sqrt{2}}$

15. Evaluate:
    $\frac{(25)^{\frac{5}{2}}\times(729)^{\frac{1}{3}}}{(125)^{\frac{2}{3}}\times(27)^{\frac{2}{3}}\times8^{\frac{4}{3}}}$

16. Prove that:
    $\left[8^{-\frac{2}{3}}\times2^{\frac{1}{2}}\times25^{-\frac{5}{4}}\right]\div\left[32^{-\frac{2}{5}}\times125^{-\frac{5}{6}}\right]=\sqrt{2}$

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