34. $\frac{15}{\sqrt{10}+\sqrt{20}+\sqrt{40}-\sqrt{5}-\sqrt{80}}$ =?, If $\sqrt{5} = 2.236$ and $\sqrt{10} = 3.162$

[A] 5.498 [B] 5.398

[D] 6.398 [D] 3.498

$$\frac{15}{\sqrt{10}+2\sqrt{5}+2\sqrt{10}-\sqrt{5}-4\sqrt{5}}$$

$$= \frac{\cancel{15}^{5}}{\cancel{3}\sqrt{10}-\cancel{3}\sqrt{5}} = \frac{5}{\sqrt{10}-\sqrt{5}} = \cancel{5}\times\frac{(\sqrt{10}+\sqrt{5})}{\cancel{5}}$$

$$= 3.162+2.236$$

35. $\frac{3\sqrt{7}}{\sqrt{5}+\sqrt{2}} - \frac{5\sqrt{5}}{\sqrt{2}+\sqrt{7}} + \frac{2\sqrt{2}}{\sqrt{7}+\sqrt{5}} = ?$

[A] 0 ✓ [B] 1

[C] 5 [D] 6

$= \frac{3\sqrt{7}\times(\sqrt{5}-\sqrt{2})}{3} + \frac{5\sqrt{5}\cdot(\sqrt{2}-\sqrt{7})}{5} + \frac{2\sqrt{2}(\sqrt{7}-\sqrt{5})}{2}$

$= \sqrt{35}-\sqrt{14}+\sqrt{10}-\sqrt{35}+\sqrt{14}-\sqrt{10}$

$= 0$

36. **What is** $\frac{1}{\sqrt{10}+\sqrt{9}}+\frac{1}{\sqrt{11}+\sqrt{10}}+\frac{1}{\sqrt{12}+\sqrt{11}}+\ldots\ldots\ldots\ldots\ldots\ldots+\frac{1}{\sqrt{196}+\sqrt{195}}$ **equal to?**

$\frac{1}{\sqrt{10}+\sqrt{9}}+\frac{1}{\sqrt{11}+\sqrt{10}}+\frac{1}{\sqrt{12}+\sqrt{11}}+\ldots\ldots\ldots\ldots\ldots\ldots+\frac{1}{\sqrt{196}+\sqrt{195}}$ **बराबर क्या है?**

(UPSC CDS-2 2024)

#

[A] 17 **[B]** 14

[C] 11 **[D]** 10

$= \sqrt{10}-\sqrt{9}+\sqrt{11}-\sqrt{10}+\sqrt{12}-\sqrt{11}+\ldots\ldots+\sqrt{196}-\sqrt{195}$

$= -3+14$

$= 11$

37. $\frac{1}{\sqrt{100}-\sqrt{99}} - \frac{1}{\sqrt{99}-\sqrt{98}} + \frac{1}{\sqrt{98}-\sqrt{97}} - \frac{1}{\sqrt{97}-\sqrt{96}} \ldots\ldots\ldots + \frac{1}{\sqrt{2}-1} = ?$

[A] 10

[B] 9

[C] 11

[D] 12

$\sqrt{100}+\sqrt{99} - (\sqrt{99}+\sqrt{98}) + \sqrt{98}+\sqrt{97} - \ldots\ldots\ldots + \sqrt{2}+1$

$= 10+1$

38. **What is the value of** $\frac{1}{5\sqrt{4}+4\sqrt{5}}+\frac{1}{6\sqrt{5}+5\sqrt{6}}+\frac{1}{7\sqrt{6}+6\sqrt{7}}+\frac{1}{8\sqrt{7}+7\sqrt{8}}+\frac{1}{9\sqrt{8}+8\sqrt{9}}$?

$\frac{1}{5\sqrt{4}+4\sqrt{5}}+\frac{1}{6\sqrt{5}+5\sqrt{6}}+\frac{1}{7\sqrt{6}+6\sqrt{7}}+\frac{1}{8\sqrt{7}+7\sqrt{8}}+\frac{1}{9\sqrt{8}+8\sqrt{9}}$ **का मान क्या है**

[A] $1/\sqrt{6}$

[B] 1/2

[C] 1

[D] 1/6

$\frac{1}{\sqrt{4}}-\frac{1}{\sqrt{5}}+\frac{1}{\sqrt{5}}-\frac{1}{\sqrt{6}}+\frac{1}{\sqrt{6}}-\frac{1}{\sqrt{7}}+\frac{1}{\sqrt{7}}-\frac{1}{\sqrt{8}}+\frac{1}{\sqrt{8}}-\frac{1}{\sqrt{9}}=\frac{1}{2}-\frac{1}{3}=\frac{1}{6}$

$\frac{1}{5\sqrt{4}+4\sqrt{5}}=\frac{5\sqrt{4}-4\sqrt{5}}{20}=\frac{1}{\sqrt{4}}-\frac{1}{\sqrt{5}}$

SelectionWay

39. If $5\sqrt{3} + \sqrt{243} = 24.249$, then what will be the value of $\sqrt{192} + 15\sqrt{3}$?

यदि $5\sqrt{3} + \sqrt{243} = 24.249$, तो $\sqrt{192} + 15\sqrt{3}$ का मान क्या होगा?

(UP CONSTABLE RE-EXAM 2024)

[A] 38.84 [B] 37.84

[C] 40.84 [D] 39.84

#

$5\sqrt{3} + 9\sqrt{3} = 24.249$

$14\sqrt{3} = 24.249$

$\sqrt{3} = 1.732$

$8\sqrt{3} + 15\sqrt{3}$

$= 23\sqrt{3}$

$= 23 \times 1.732$

$= 39.836$

40. If the value of $\sqrt{40}$ is approximately equal to 6.325, then the value of $\sqrt{\frac{8}{5}}$ is equal to which of the following?

यदि $\sqrt{40}$ का मान 6.325 के लगभग बराबर है, तो $\sqrt{\frac{8}{5}}$ का मान इनमे से किसके बराबर है?

RRB NTPC 2021

[A] 2.828 [B] 0.565

[C] 1.26 [D] 1.625

#

$\sqrt{40} \approx 6.325$

$$\sqrt{\frac{8}{5}} = \sqrt{\frac{8\times5}{5\times5}} = \frac{\sqrt{40}}{5} \approx \frac{6.325}{5}$$

$$\approx 1.265$$

41. If $\sqrt{7} = 2.6457$ and $\sqrt{3} = 1.732$, then find the value of $\frac{1}{\sqrt{7}-\sqrt{3}}$.

यदि $\sqrt{7} = 2.6457$ और $\sqrt{3} = 1.732$ हो, तो $\frac{1}{\sqrt{7}-\sqrt{3}}$ का मान ज्ञात कीजिए।

RRB RPF Constable-2019

[A] 1.0944
[B] 1.944
[C] 1.009
[D] 1.0844

$$\frac{1}{\sqrt{7}-\sqrt{3}} = \frac{\sqrt{7}+\sqrt{3}}{4}$$

$$= \frac{4.3777}{4}$$

$$\approx 1.09$$

42. Evaluate $\frac{\sqrt{3}+\sqrt{2}}{\sqrt{3}-\sqrt{2}}$, given that $\sqrt{6} = 2.45$?

$\frac{\sqrt{3}+\sqrt{2}}{\sqrt{3}-\sqrt{2}}$ का मूल्यांकन करें, यह देखते हुए कि $\sqrt{6} = 2.45$?

[A] 7.7

[B] 9.9

[C] 8.8

[D] 6.6

$$\frac{\sqrt{3}+\sqrt{2}}{\sqrt{3}-\sqrt{2}} = \frac{(\sqrt{3}+\sqrt{2})^2}{1} = 5+2\sqrt{6}$$

$$= 5+2\times 2.45$$

$$\approx 9.9$$

43. If $x=\sqrt{\left(\frac{5+2\sqrt{6}}{5-2\sqrt{6}}\right)\times\frac{5+2\sqrt{6}}{5+2\sqrt{6}}}$ $x^2(x-10)^2=?$

[A] 1

[B] -1

[C] 2

[D] -2

#

$$x=\sqrt{\frac{(5+2\sqrt{6})^2}{1}}$$

$$x=5+2\sqrt{6}$$

$$x-5=2\sqrt{6}$$

$$\Rightarrow x^2-10x+25=24$$

$$x^2-10x=-1$$

$$=[x\cdot(x-10)]^2$$

$$=(x^2-10x)^2=(-1)^2$$

44. If $\frac{8+2\sqrt{3}}{3\sqrt{3}+5} = a\sqrt{3} - b$, then the value of a + b is equal to:

यदि $\frac{8+2\sqrt{3}}{3\sqrt{3}+5} = a\sqrt{3} - b$ है, तो $a + b$ का मान ज्ञात कीजिए।

[A] 18

[B] 15

[C] 16

[D] 24

$\frac{8+2\sqrt{3}}{3\sqrt{3}+5} \times \frac{3\sqrt{3}-5}{2}$

$(4+\sqrt{3})\cdot(3\sqrt{3}-5)$

$7+11$

$7\sqrt{3}-11 = a\sqrt{3}-b$