1) $\left(1-\frac{1}{10^2}\right)\left(1-\frac{1}{11^2}\right)\left(1-\frac{1}{12^2}\right)\cdots\left(1-\frac{1}{20^2}\right)=?$

$\Rightarrow \left(1-\frac{1}{10}\right)\left(1+\frac{1}{10}\right)\left(1-\frac{1}{11}\right)\left(1+\frac{1}{11}\right)\left(1-\frac{1}{12}\right)$

$\left(1+\frac{1}{12}\right)\cdots\left(1-\frac{1}{20}\right)\left(1+\frac{1}{20}\right)$

$\Rightarrow \frac{9}{10}\times\frac{11}{10}\times\frac{10}{11}\times\frac{12}{11}\times\frac{11}{12}\times\frac{13}{12}\cdots$

$\times\frac{19}{20}\times\frac{21}{20}$

$\Rightarrow \frac{9}{10}\times\frac{21}{20} \Rightarrow \boxed{\frac{189}{200}}$ Ans = D

2) $(35)^{12}\times(35)^{8}\div(5)^{4}\div(49)^{2}=35^{x}$

$\Rightarrow \frac{35^{12}\times 35^{8}}{5^4\times(7)^{2\times2}}=35^{x}$

$\Rightarrow \frac{35^{20}}{5^4\times7^4}=35^{x}$

$\Rightarrow \frac{35^{20}}{35^4}=35^{x}$

$\Rightarrow 35^{20-4}=35^{x}$ Ans = C

$\Rightarrow 35^{x}=35^{16} \Rightarrow \boxed{x=16}$

3) $0.9+0.99+0.999+0.9999$

$\Rightarrow$ 0.9
0.99
0.999
0.9999
3.8889

Ans $\Rightarrow$ D

4) यदि 36 के वर्ग के $\frac{4}{9}$ से 2340 का 25% घटाया जाय तो क्या मान आप प्राप्त करेंगे

$\Rightarrow (36)^{2}\times\frac{4}{9}-2340\times25\%$

$\Rightarrow 1296\times\frac{4}{9}-2340\times\frac{25}{100}$

$\Rightarrow 144\times4-585$

$\Rightarrow 576-585=\boxed{-9}$ Ans = C

5) Find the value of x:

$\frac{1}{2}\times\frac{2}{6}\times\frac{3}{8}\times\frac{4}{10}\times\cdots\frac{62}{126}\times\frac{63}{128}=\frac{1}{2^{x}}$

$\Rightarrow \frac{1}{2^{62}}\times\frac{1}{2^{7}}=\frac{1}{2^{x}}$

$\Rightarrow \frac{1}{2^{69}}=\frac{1}{2^{x}} \Rightarrow \boxed{x=69}$

Ans = A

(6) if $A=\frac{1}{1\times5}$, $B=\frac{1}{5\times9}$, $C=\frac{1}{9\times13}$ ···· then

$A+B+C+\cdots\cdots \downarrow \frac{1}{101\times105}$

$\frac{1}{\underbrace{1\times5}_{4}}+\frac{1}{5\times9}+\frac{1}{9\times13}\cdots\cdots\frac{1}{101\times105}$

$\frac{1}{4}\left(1-\frac{1}{105}\right)=\frac{1}{4}\left(\frac{105-1}{105}\right)$

$\Rightarrow \frac{1}{4}\times\frac{104}{105}=\boxed{\frac{26}{105}}$

Ans = B

(7) $\frac{\frac{2}{3}-\frac{4}{3}+\frac{1}{3}-\frac{4}{5}-\frac{1}{5}+\frac{1}{2}}{\frac{3}{4}+\frac{1}{5}-\frac{1}{3}-\frac{1}{2}+\frac{4}{5}-\frac{2}{3}}=?$

$\Rightarrow \frac{20-40+10-24-6+15}{30}$

$\Rightarrow \frac{45+12-20-30+48-40}{60}$

$\Rightarrow \frac{\frac{-25}{30}}{\frac{15}{60}} \Rightarrow \frac{-25}{30}\times\frac{60}{15} \Rightarrow \boxed{\frac{-10}{3}}$

Ans ⇒ C

(8) $99\frac{1}{7}+99\frac{2}{7}+99\frac{3}{7}+\cdots+99\frac{14}{7}$

$\Rightarrow 99\times14+\left(\frac{1}{7}+\frac{2}{7}+\frac{3}{7}+\cdots\frac{14}{7}\right)$

$\Rightarrow 99\times14+\left(\frac{\frac{n(n+1)}{2}}{7}\right)$

$\Rightarrow 99\times14+\frac{14\times15}{2\times7}$

$\Rightarrow 1386+15 \Rightarrow \boxed{1401}$

Ans ⇒ B

(9) $9.5-\left[5.4-\left\{6.1-\left(3.2-\overline{2.1-1}\right)\right\}\right]$

$9.5-\left[5.4-\left\{6.1-\left(3.2-1.1\right)\right\}\right]$

$\Rightarrow 9.5-\left[5.4-\left\{6.1-2.1\right\}\right]$

$\Rightarrow 9.5-\left[5.4-4\right] \Rightarrow 9.5-1.4$

$\Rightarrow \boxed{8.1}$

Ans ⇒ D

(10) $\frac{420\times36-63\times160}{240-30}$

$\Rightarrow \frac{15120-10080}{210}$

$\Rightarrow \frac{5040}{210}=\boxed{24}$

Ans = A

(11) $9795 + 3295 - x = 8734$

$\Rightarrow 13090 - x = 8734$

$\Rightarrow x \Rightarrow 13090 - 8734$

$x \Rightarrow \boxed{4356}$ Ans = B

(12) $1 + \dfrac{1}{1 + \dfrac{1}{1 + \frac{1}{2}}} \Rightarrow 1 + \dfrac{1}{1 + \dfrac{1}{\frac{3}{2}}}$

$\Rightarrow 1 + \dfrac{1}{1 + \frac{2}{3}} \Rightarrow 1 + \dfrac{1}{\frac{5}{3}}$

$\Rightarrow 1 + \frac{3}{5} \Rightarrow \boxed{\frac{8}{3}}$ Ans B

(13) If $p * q = p + q + \frac{p}{q}$ then

$10 * 2 = ?$

$p * q \Rightarrow 10 + 2 + \frac{10}{2}$

$\downarrow \quad \downarrow$

$10 \quad 2 \Rightarrow 12 + 5 = 17$

Ans = B

(14) $\frac{3}{4} + \frac{5}{36} + \frac{7}{144} + \cdots + \frac{19}{8100} = ?$

$\Rightarrow \left(1 - \frac{1}{4}\right) + \left(\frac{1}{4} - \frac{1}{9}\right) + \left(\frac{1}{9} - \frac{1}{16}\right) + \cdots + \left(\frac{1}{81} - \frac{1}{100}\right)$

$\Rightarrow \left(1 - \frac{1}{100}\right) \Rightarrow \frac{99}{100}$ Ans = B

(15) $\sqrt{16129} = ?$

$\Rightarrow \sqrt{16129} \Rightarrow 127$ Ans = B

(16) $\frac{9}{20} - \left[\frac{1}{5} + \left\{\frac{1}{4} + \left(\frac{5}{6} - \overline{\frac{1}{3} + \frac{1}{2}}\right)\right\}\right]$

$\Rightarrow \frac{9}{20} - \left[\frac{1}{5} + \left\{\frac{1}{4} + \left(\frac{5}{6} - \left(\frac{2+3}{6}\right)\right)\right\}\right]$

$\Rightarrow \frac{9}{20} - \left[\frac{1}{5} + \left\{\frac{1}{4} + \left(\frac{5}{6} - \frac{5}{6}\right)\right\}\right]$

$\Rightarrow \frac{9}{20} - \left[\frac{1}{5} + \left\{\frac{1}{4} + 0\right\}\right]$

$\Rightarrow \frac{9}{20} - \left[\frac{1}{5} + \frac{1}{4}\right] \Rightarrow \frac{9}{20} - \frac{9}{20}$

$\Rightarrow 0$

Ans $\Rightarrow$ A

(17) $\dfrac{\frac{1}{3}\div\frac{1}{3}\times\frac{1}{3}}{\frac{1}{3}\div\frac{1}{3}\text{ of }\frac{1}{3}}-\frac{1}{9}$ is

$\Rightarrow \dfrac{\frac{1}{3}\times\frac{3}{1}\times\frac{1}{3}}{\frac{1}{3}\div\left(\frac{1}{3}\times\frac{1}{3}\right)}-\frac{1}{9}$

$\Rightarrow \dfrac{\frac{1}{3}}{\frac{1}{3}\times\frac{9}{1}}-\frac{1}{9} \Rightarrow \frac{1}{9}-\frac{1}{9}$

$\Rightarrow 0$

Ans = A

(18) $3\frac{1}{2}-\left[2\frac{1}{4}\div\left\{1\frac{1}{4}-\frac{1}{2}\left(1\frac{1}{2}-\frac{1}{3}-\frac{1}{6}\right)\right\}\right]$

$\Rightarrow \frac{7}{2}-\left[\frac{9}{4}\div\left\{\frac{5}{4}-\frac{1}{2}\left(\frac{3}{2}-\frac{1}{3}-\frac{1}{6}\right)\right\}\right]$

$\Rightarrow \frac{7}{2}-\left[\frac{9}{4}\div\left\{\frac{5}{4}-\frac{1}{2}\left(\frac{9-2-1}{6}\right)\right\}\right]$

$\Rightarrow \frac{7}{2}-\left[\frac{9}{4}\div\left\{\frac{5}{4}-\frac{1}{2}\left(\frac{6}{6}\right)\right\}\right]$

$\Rightarrow \frac{7}{2}-\left[\frac{9}{4}\div\left\{\frac{5}{4}-\frac{1}{2}\right\}\right]$

$\Rightarrow \frac{7}{2}-\left[\frac{9}{4}\div\left\{\frac{5-2}{4}\right\}\right]$

$\Rightarrow \frac{7}{2}-\left[\frac{9}{4}\times\frac{4}{3}\right]=\frac{7}{2}-3=\boxed{\frac{1}{2}}$

Ans A

(19) $999\frac{999}{1000}\times 7$ is equal to

$\Rightarrow \left(1000-\frac{1}{1000}\right)\times 7$

$\Rightarrow 7000-\frac{7}{1000}$

$\Rightarrow 6999+1-\frac{7}{1000} \Rightarrow \boxed{6999\frac{993}{1000}}$

Ans = D.

(20) $x-[y-\{z-(x-y-z)\}]$

$\Rightarrow x-[y-\{z-(x-y+z)\}]$

$x-[y-\{x-x+y-z\}]$

$x-[y+x-y]=x-x=0$

Ans = D

(21) $\dfrac{409}{4+\frac{3}{\left\{4+\frac{3}{4+\frac{3}{4}}\right\}}} \Rightarrow \dfrac{409}{4+\frac{3}{4+\frac{3}{\frac{19}{4}}}}$

$\Rightarrow \dfrac{409}{4+\frac{3}{4+\frac{12}{19}}} \Rightarrow \dfrac{409}{4+\frac{3}{\frac{88}{19}}}$

$\Rightarrow \dfrac{409}{4+\frac{57}{88}} \Rightarrow \dfrac{409}{\frac{409}{88}} \Rightarrow \dfrac{409\times 88}{409}$

$\Rightarrow \boxed{88}$

Ans = A

(22) $\frac{13}{48}$ is equal to:—

$$\frac{1}{\frac{48}{13}} = \frac{1}{3+\frac{9}{13}} = \frac{1}{3+\frac{1}{\frac{13}{9}}}$$

$$\frac{1}{3+\frac{1}{1+\frac{9}{4}}} \Rightarrow \frac{1}{3+\frac{1}{1+\frac{1}{\frac{9}{4}}}}$$

$$\Rightarrow \frac{1}{3+\frac{1}{1+\frac{1}{2+\frac{1}{4}}}} \Rightarrow \text{Ans} = D$$

(23) यदि संक्रिया '*' को $a*b$ $\Rightarrow a+b-ab$ से परिभाषित किया गया है तो $5*7$ बराबर है

$a*b = a+b-ab$

$5 \quad 7 \Rightarrow 5+7-5\times7$

$\Rightarrow 12-35 \Rightarrow \boxed{-23}$

Ans C

(24) if $p*q = p+q+\frac{p}{q}$ तो $8*2 = ?$

$p*q \Rightarrow p+q+\frac{p}{2}$

$8 \quad 2$

$\Rightarrow 8+2+\frac{8}{2} \Rightarrow \boxed{14}$

Ans = C

(25) 2-अंको की सभी संख्याओं का योग ज्ञात करें

$10, 11, 12, \ldots\ldots\ldots\ldots 99$

$\Rightarrow \left(\frac{99+10}{2}\right) \times \left(\frac{99-10}{1}+1\right)$

$\Rightarrow \frac{109}{2} \times (89+1)$

$\Rightarrow \frac{109}{2} \times 90^{45} \Rightarrow 109\times45$

$\Rightarrow \boxed{4905}$

Ans = D