Q1. Let α and β be the roots of $5x^2+6x-2=0$. if $S_n=\alpha^x+\beta^n \quad (n=1,2,3\ldots)$ then

(a) $5s_6+6s_5=2s_4$

(b) $6s_6+5s_5+2s_4=0$

(c) $6s_6+5s_5=2s_4$

(d) $5s_6+6s_5+2s_4=0$

Q2. Let $\alpha \,\&\, \beta$ be 2 roots of the equation $x^2+2x+2=0$ then $\alpha^{15}+\beta^{15}$ is equal to

(a) 512

(b) -512

(c) -256

(d) 256

Q3. Let α, β, y be the roots of $x^3-6x^2+2x-1=0$ If $S_n=\alpha^n+\beta^n+y^n$ for $n\geq 1$, then value of $\frac{S_8+2S_6-S_5}{3S_7}$ is

Q4. Let α and β are roots of equation $x^2-2x-7=0$ and $a_n=\alpha^n-\beta^n$, then value of $\frac{a_{2021}-2\left(a_{2020}+a_{2019}\right)}{a_{2019}}$ is

Q5. If α, β are roots of the equation $x^2+5(\sqrt{2})x+10=0, \alpha>\beta$ and $P_n=\alpha^n-\beta^n$ for each positive integer n, then the value of $\left(\frac{P_{17}P_{20}+5\sqrt{2}P_{17}P_{19}}{P_{18}P_{19}+5\sqrt{2}P_{18}^2}\right)$ is equal to

Q6. If α and β are the distinct roots of the equation $\mathrm{x}^2+(3)^{1/4}\mathrm{x}+3^{1/2}=0$, then the value of $\alpha^{96}\left(\alpha^{12}-1\right)+\beta^{96}\left(\beta^{12}-1\right)$ is equal to :

(a) 56×3^{25}

(b) 56×3^{24}

(c) 52×3^{24}

(d) 28×3^{25}

Q7. The sum of the fourth powers of the roots of the equation
$x^3 + x + 1 = 0 \Rightarrow S_4 + \alpha^4 + \beta^4 + \gamma^4 = ?$