1. If $\alpha,\ \beta$ are the roots of $x^2-x+1=0$ then the quadratic equation whose roots are $\alpha^{2015},\ \beta^{2015}$ is

(1) $x^2-x+1=0$ (2) $x^2+x+1=0$

(3) $x^2+x-1=0$ (4) $x^2-x-1=0$

2. For a quadratic $\left(a^2-3a+2\right)x^2+\left(a^2-5a+6\right)x+a^2-4=0$, the number of values of a for which the given quadratic equation is an identity in x, is equal to

(1) 0 (2) 1

(3) 2 (4) 3

3. Difference between the corresponding roots of $x^2+ax+b=0$ and $x^2+bx+a=0$ is same and $a\neq b$, then

(1) a + b - 4 =0 (2) a - b - 4 = 0

(3) a - b + 4 = 0 (4) a + b + 4 = 0

4. Find the value of λ such that sum of the squares of the roots of $x^2+\left(4-\lambda\right)x+3=\lambda$ has the least value.

5. If one root of equation $x^2+ax+12=0$ is 4 while the equation $x^2+ax+b=0$ has equal roots, then the value of b is

(1) $\frac{4}{49}$ (2) $\frac{49}{4}$

(3) $\frac{7}{4}$ (4) $\frac{4}{7}$

6. The number of integral values of m for which the equation $\left(1+m^2\right)x^2-2(1+3m)x+(1+8m)=0$ has no real root is:

(1) 2 (2) 3

(3) Infinitely many (4) 1

7. The number of all possible positive integral values of α for which the roots of the quadratic equation, $6\mathrm{x}^2-11\mathrm{x}+\alpha=0$ are rational numbers is

(1) 3 (2) 4

(3) 5 (4) 2

8. The sum of the roots of the equation, $x^2+|2x-3|-4=0$, is

(1) 2 (2) $-\sqrt{2}$

(3) $\sqrt{2}$ (4) -2

9. If $\alpha\neq\beta$, $\alpha^2=5\alpha-3$ and $\beta^2=5\beta-3$ then the equation whose roots are $\alpha/\beta,\ \beta/\alpha$ is

(1) $3x^2-25x+3=0$ (2) $x^2+5x-3=0$

(3) $x^2-5x+3=0$ (4) $3x^2-19x+3=0$

10. Let α & β be the roots of , $x^2-6x-2=0$ with $\alpha>\beta$. If $a_n=\alpha^n-\beta^n$ for $n\geq 1$, then the value of $\frac{a_{10}-2a_8}{2a_9}$ is

(1) 1 (2) 2

(3) 4 (4) 3