1. If $x^2 + 2ax + 10 - 3a > 0$ for all $x \in R$, then

(1) $-5 < a < 2$ (2) $a < -5$

(3) $a > 5$ (4) $2 < a < 5$

2. The values of a for which $(a^2 - 1)x^2 + 2(a - 1)x + 2$ is positive for any x is

(1) $a \geq 1$ (2) $a \leq 1$

(3) $a > -3$ (4) $a \leq -3$ or $a > 1$

3. The number of integral values of m for which the quadratic expression $(1 + 2m)x^2 - 2(1 + 3m)x + 4(1 + m)$, $x \in R$ is always positive, is

(1) 7 (2) 3

(3) 6 (4) 8

4. If α and β are the roots of $4x^2 - 16x + \lambda = 0$, $\lambda \in R$ such that $1 < \alpha < 2$ and $2 < \beta < 3$, then the number of integral solutions of λ is

(1) 5 (2) 6

(3) 2 (4) 3

5. The set of all the possible real values of a such that the inequality $(x - (a - 1))(x - (a^2 + 2)) < 0$ holds for all $x \in (-1, 3)$, is

(1) $(1, \infty)$ (2) $(-\infty, -1)$

(3) $(-\infty, 1)$ (4) $(0, 1)$

6. All the real values of m such that both roots of the equation $x^2 - 2mx + m^2 - 1 = 0$ are greater than -2 and less than 4 lies in

(1) $(-2, 4)$ (2) $(-1, 2)$

(3) $(-1, 3)$ (4) None of these

7. The value of k for which both the roots of the equation $4x^2 - 20kx + (25k^2 + 15k - 66) = 0$ are less than 2, lies in

(1) $\left(\frac{4}{5}, 2\right)$ (2) $(0, 2)$

(3) $\left(-1, -\frac{4}{5}\right)$ (4) $(-\infty, -1)$

8. If both roots of $x^2 - 2ax + a^2 + a - 3 = 0$ are less than 3, then

(1) $a < 2$ (2) $2 \leq a \leq 3$

(3) $3 < a \leq 4$ (4) $a > 4$

9. The range of a for which the equation $x^2 + ax - 4 = 0$ has its smaller root in the interval $(-1, 2)$ is

(1) $(-\infty, -3)$ (2) $(0, 3)$

(3) $(0, \infty)$ (4) $(-\infty, -3) \cup (0, \infty)$

10. If the equation $ax^2 + 2bx - 3c = 0$ has no real roots and $\frac{3c}{4} < a + b$, then

(1) $c < 0$ (2) $c > 0$

(3) $c = 0$ (4) $a + 2b - 3c < 0$