Q1. Let $f(x)$ be a quadratic polynomial such that $f(-1)+f(2)=0$. If one of the roots of $f(x)=0$ is 3 then its other root lies in

(a) $(-1,0)$

(b) $(-3,-1)$

(c) $(0,1)$

(d) $(1,3)$

Q2. If α,β be the roots of $4x^2-16x+c=0 \quad c\in R$ such that $1<\alpha<2$ & $2<\beta<3$ then the number of integral values of C

(a) 5

(b) 6

(c) 2

(d) 3

Q3. If both the roots of the equation $x^2-2ax+a^2-1=0$ lie between $(-2,2)$ then find $[a]$ where $[\,]\rightarrow$ GIF

(a) $-1,0$

(b) 0,1

(c) 1,2

(d) none of these

Q4. If $a\in R$ & the equation $(a-2)(x-[x])^2+2(x-[x])+a^2=0$

(where [x] denotes greatest integer function) has no integral solution and has exactly one solution in $(2,3)$ then a lies in interval

(a) $(1,2)$

(b) $(0,1)$

(c) $(-1,0)$

(d) $(2,3)$

Q5. If the equation $|\sin x|^2 + |\sin x| + 6 = 0$ has 2 distinct roots in $[0,\pi]$ then the number of integers in the range of 6 is equal to

Q6. If the equation $x^4 + kx^2 + k = 0$ has exactly two distinct real roots then the smallest integral value of $|k|$.

Q7. Consider the equation $\left(x^2+x+1\right)^2 - (m-3)\left(x^2+x+1\right) + m = 0$ where m is real. Find number of positive integral values of m for which equation has 2 distinct real roots.