Q1. The equation $e^{\sin x} - e^{-\sin x} - 4 = 0$ has

(a) infinite number of real roots

(b) no real root

(c) exactly one real root

(d) exactly four real roots

Q2. How many real solutions does the equation $x^7 + 14x^5 + 16x^3 + 30x - 560 = 0$ have?

(1) 1

(2) 3

(3) 5

(4) 7

Q3. The number of distinct real roots of the equation $3x^4 + 4x^3 - 12x^2 + 4 = 0$ is

Q4. The number of real roots of the equation $e^{4x} + 2e^{3x} - e^x - 6 = 0$ is:

Q5. If $2\frac{2\pi}{\sin^{-1} x} - 2(a+2)2^{\frac{\pi}{\sin^{-1} x}} + 8a < 0$ for at least one real x, then

(a) $\frac{1}{8} \le a < 2$

(b) $a < 2$

(c) $a \in R - \{2\}$

(d) $a \in \left(0, \frac{1}{8}\right] \cup [2, \infty)$