$$P\left(\frac{\lambda_N}{2\sqrt{N}} \geq e^{N^{-2/3}\epsilon}\right) \leq Ce^{-C'\epsilon^{3/2}}$$

$$\left(\frac{\lambda_N}{2\sqrt{N}} - 1\right) N^{2/3}$$

$$P\left(\left(\frac{\lambda_N}{2\sqrt{N}} - 1\right) N^{2/3} \geq \delta\right)$$

$$= P\left(\left(\frac{\lambda_N}{2\sqrt{N}}\right) \geq 1 + N^{-2/3}\delta\right)$$

$$\leq P\left(\frac{\lambda_N}{2\sqrt{N}} \geq e^{\delta -}\right.$$

$$e^{-x} \geq 1 - x \geq e^{-x-x^2}$$

$$|x| \leq 1$$

C