

$$\begin{aligned}
 \text{'25} \\
 \text{(iii)} \quad \lim_{x \rightarrow 1} \frac{x^2 - 1}{x^3 + x - 2} &= \lim_{x \rightarrow 1} \frac{(x-1)(x+1)}{x^3 - x + 2x - 2} = \lim_{x \rightarrow 1} \frac{(x-1)(x+1)}{x(x^2 - 1) + 2(x-1)} = \lim_{x \rightarrow 1} \frac{(x-1)(x+1)}{x(x-1)(x+1) + 2(x-1)} \\
 &= \lim_{x \rightarrow 1} \frac{(x-1)(x+1)}{(x-1)[x(x+1) + 2]} = \lim_{x \rightarrow 1} \frac{x+1}{x^2 + x + 2} = \frac{2}{4} = \frac{1}{2}
 \end{aligned}$$