155

$$\lim_{x\to+\infty} \frac{x^4+3x^2+\cos^4 x}{x^2+\operatorname{arccotg} x}\left(3^{\cos\frac{1}{x}}-3\right)=$$

$$=\lim_{x\to+\infty} \frac{x^4+3x^2+\cos^4 x}{x^2+\operatorname{arccotg} x}\,3\left(3^{\cos\frac{1}{x}-1}-1\right)=$$

$$=3\lim_{x\to+\infty} \frac{x^4+3x^2+\cos^4 x}{x^2+\operatorname{arccotg} x}\left(\cos\frac{1}{x}-1\right)\frac{3^{\cos\frac{1}{x}-1}-1}{\cos\frac{1}{x}-1}=$$

$$=-3\lim_{x\to+\infty} \frac{x^4+3x^2+\cos^4 x}{\left(x^2+\operatorname{arccotg} x\right)x^2}\,\frac{1-\cos\frac{1}{x}}{\frac{1}{x^2}}\,\frac{3^{\cos\frac{1}{x}-1}-1}{\cos\frac{1}{x}-1}=$$

$$=-3\cdot 1\cdot\frac{1}{2}\cdot\log 3=-\frac{3}{2}\log 3$$