

$$(4) \lim_{x \rightarrow -\infty} \left( \frac{x^4 \sin \frac{1}{x} + x^2}{1 + |x|^3} \right)$$

Sol<sup>n</sup>: 
$$\lim_{x \rightarrow -\infty} \frac{x^4 \sin \frac{1}{x} + x^2}{1 - x^3}$$

Dividing by  $x^3$ , we get

$$= \lim_{x \rightarrow -\infty} \frac{\frac{\sin(1/x)}{(1/x)} + \frac{1}{x}}{\frac{1}{x^3} - 1}$$

$$= \frac{1+0}{0-1}$$

$$= -1$$

a) 0

b) 1

d) 2

c) -1