

The integral  $\int \frac{dx}{x^2(x^4+1)^{3/4}}$  equals :

- (1)  $-(x^4+1)^{1/4} + c$
- ✓ (2)  $-\left(\frac{x^4+1}{x^4}\right)^{1/4} + c$
- (3)  $\left(\frac{x^4+1}{x^4}\right)^{1/4} + c$
- (4)  $(x^4+1)^{1/4} + c$

$$\int \frac{dx}{x^2(x^4+1)^{3/4}} = \int x^{-2}(x^4+1)^{-3/4} dx$$

$-\frac{2+1}{4} - \frac{3}{4}$  is equal to  $-1$   
 which is an integer.

$\therefore x^4+1 = x^4 t^4$  Substituting

$$\Rightarrow dx = \frac{x t^3}{1-t^4} dt$$

$$\therefore I = \int \left\{ \frac{1}{x^2} \times (x^4 t^4)^{-3/4} \times \frac{x t^3}{1-t^4} \right\} dt$$

$$\therefore I = \int \frac{dt}{x^4(1-t^4)} = \int (-1) dt$$

$$\therefore I = -t + c = -\left(\frac{x^4+1}{x^4}\right)^{1/4} + c$$

Correct option is (2)