

$$g(x) = e^{x^3}$$

$$e^x = 1 + x + \frac{x^2}{2!} + \frac{x^3}{3!} + \frac{x^4}{4!} + \dots$$

$$e^{x^3} = 1 + x^3 + \frac{(x^3)^2}{2!} + \frac{(x^3)^3}{3!} + \frac{(x^3)^4}{4!} + \dots + \frac{(x^3)^{17}}{17!} + \dots$$

$$g(x) = e^{x^3} = 1 + x^3 + \frac{x^6}{2!} + \frac{x^9}{3!} + \frac{x^{12}}{4!} + \dots + \frac{x^{51}}{17!} + \frac{x^{54}}{18!} + \dots$$

$$g^{(51)}(x) = 0 + 0 + 0 + \dots + 0 + \frac{51 \times 50 \times 49 \times \dots \times 1}{17!} + \frac{54! x}{18!}$$

$$g^{(51)}(0) = 0 + 0 + 0 + \dots + \frac{51!}{17!} + 0 + 0 + 0 + \dots$$

Thus, $g^{(51)}(0) = \frac{51!}{17!}$

lower degree less than 51 becomes zero after differentiating 51 times.