

$$\text{a.iii) } \int_0^2 (3x^3 + 2x)^3 + 4x + 3 dx$$

$$\int_0^2 (3x^3 + 2x)(3x^3 + 2x)(3x^3 + 2x) + 4x + 3 dx$$

$$\int_0^2 (9x^6 + 6x^4 + 6x^4 + 4x^2)(3x^3 + 2x) + 4x + 3 dx$$

$$\int_0^2 (27x^9 + 18x^7 + 18x^7 + 12x^5 + 18x^7 + 12x^5 + 12x^5 + 8x^3 + 4x + 3) dx$$

$$\int_0^2 27x^9 + 54x^7 + 36x^5 + 8x^3 + 4x + 3 + C$$

$$\left[\frac{27x^{10}}{10} + \frac{54x^8}{8} + \frac{36x^6}{6} + \frac{8x^4}{4} + \frac{4x^2}{2} + (3x) + C \right]$$

$$- [0 + C]$$

$$= 4248.267$$