

# Integrals

M.M. - 40

Duration:- 1hr. 15 mins.

Evaluate the following integrals:-

[5 × 8]

$$1. \int \frac{1}{\sin(x+a) \cos(x+b)} dx$$

$$2. \int \frac{\sin x}{\sin^3 x + \cos^3 x} dx$$

$$3. \int \frac{1}{(1+x+x^2)^2} dx$$

$$4. \int \frac{2x^9 - 3x^7}{(2x^7 + x^3 - x)^2} dx$$

$$5. \int_{-\pi}^{\pi} \frac{2x(1+\sin x)}{1+\cos^2 x} dx$$

$$6. \int_0^1 \frac{8 \log(1+x)}{1+x^2} dx$$

$$7. \int_0^{\frac{1}{2}} \frac{1}{(1+x^2)\sqrt{1-x^2}} dx$$

$$8. \int_0^{\pi} \frac{x}{1+\sin x} dx$$

*Bonus question: This question is worth two questions above.*

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

————— Best of Luck! —————