Qu12:- $\int \frac{\cos x}{(1+\sin x)(2+\sin x)}\,dx$

let $\sin x = t$

$\cos x\,dx = dt$

$$\int \frac{dt}{(1+t)(2+t)}$$

By using fractional method.

$$\frac{1}{(1+t)(2+t)} = \frac{A}{(1+t)} + \frac{B}{(2+t)}$$

$$1 = (2+t)A + B(1+t)$$

$$1+t = 0$$

put $t = -1$

$A = 1.$

$t = -2 \quad B = 2$

$$\int \frac{1}{(1+t)(2+t)}\,dt = \int \frac{1}{(1+t)} + \left(\frac{3}{(2+t)}\,dt\right.$$

$$= \log(1+t) + 2\log(2+t) + C$$

$$= \log(1+\sin t) + 2\log(2+$$