Sol. H_0. The experimental result support the theory. *i.e.* there is no significant difference between the observed and theoretical frequency under H_0, the theoretical frequency can be calculated as follows :

$$E(G_1) = \frac{1600 \times 9}{16} = 900 \; ; \; E(G_2) = \frac{1600 \times 3}{16} = 300 \; ; \; E(G_3) = \frac{1600 \times 3}{16} = 300 \; ; \; E(G_4) = \frac{1600 \times 1}{16} = 100$$

To calculate the value of χ^2.

Observed frequency O_i	882	313	287	118
Exp. frequency E_i	900	300	300	100
$\frac{(O_i - E_i)^2}{E_i}$	0.36	0.5633	0.5633	3.24

$$\chi^2 = \frac{\Sigma (O_i - E_i)^2}{E_i} = 4.7266.$$

Conclusion. Table value of χ^2 at 5% level of significance for 3 d.f. is 7.815. Since the calculated value of χ^2 is less than that of the tabulated value. Hence H_0 is accepted.

i.e. The experimental result support the theory.