Q//the average income of a person is rs210 and rs10 as a standard deviarion in a sample 100 people

(1)

Given that :-

Null hypothesis $H_0 : \bar{x} = \bar{x}_2$

Alternative hypothesic $H_1 : \bar{x}_1 \neq \bar{x}_2$

Level of significance, $\alpha = 0.05$

Critical region, accept the null hypothesis is,

If, $-1.96 < z < 1.96$

Given that,

Mean of the 1st sample, $\bar{X}_1 = 210$

Mean of the 2nd sample, $\bar{x}_2 = 220$

Standard deviation of 1st sample $s_1 = 10$

Standard deviation of 2nd sample $s_2 = 12$

$$n_1 = 100$$
$$n_2 = 150$$

$$z = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\dfrac{S_1^2}{n_1} + \dfrac{S_2^2}{n_2}}} = \frac{-10}{\sqrt{\dfrac{300 + 288}{300}}}$$

$$= \frac{-10}{\sqrt{\dfrac{588}{300}}} = \frac{-10}{\sqrt{1.96}}$$

$$= \frac{-10}{1.4}$$

$Z = -7.143$

(2)

$|Z| = 7.143$

$7.143 < 1.96$, the null hypothesis H_0 is accep

-ted at 5% level of significance.

∴ There is no significant difference between

the average incomes of the localities.