به نام خدا

**قسمتی از پایان ترم درس رگرسیون**

3- بر اساس مشاهدات حاصل از متغیرهای مستقل X1، X2 و X3 و متغیر پاسخ Y چندین مدل برازش شده و نتایج زیر به دست آمده است:

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **ANOVA ( Model1 )**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Model | Sum of Squares | df | Mean Square | F | Sig. |
| Regression | - | 3 | - | 967.632 | .000 |
| Residual | - | 14 | .002 |  |  |
| Total | - | 17 |  |  |  |

a Predictors: (Constant), **x3, x1, x2**b Dependent Variable: y |  **ANOVA ( Model2 )**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Model | Sum of Squares | df | Mean Square | F | Sig. |
| Regression | - | - | - | 2784.012 | .000 |
|  Residual | .027 | 16 | .002 |  |  |
|  Total | - | - |  |  |  |

a Predictors: (Constant), **x3**b Dependent Variable: y |

 **ANOVA ( Model3 )**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Model | Sum of Squares | df | Mean Square | F | Sig. |
| Regression | - | 2 | .588 | - | .115 |
|  Residual | 3.526 | 15 | - |  |  |
|  Total | 4.703 | 17 |  |  |  |

a Predictors: (Constant), **x1, x2**

b Dependent Variable: y

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  **Coefficients ( Model1 )**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Model |  | Unstandardized Coefficients | t | Sig. |
| B | Std. Error |
| (Constant) | 1.505 | .370 | 4.065 | .001 |
| x1 | -.003 | .005 | -.632 | .538 |
| x2 | .006 | .004 | 1.610 | .130 |
| x3 | .201 | .004 | 46.615 | .000 |

a Dependent Variable: y |  **Coefficients ( Model3 )**

|  |  |  |  |
| --- | --- | --- | --- |
| Model | Unstandardized Coefficients | t | Sig. |
| B | Std. Error |
| (Constant) | -4.229 | 4.216 | -1.003 | .332 |
| x1 | .011 | .056 | .189 | .852 |
| x2 | .086 | .041 | - | - |

a Dependent Variable: y |

پ- با روش مجموع مربعات رگرسیون اضافی آزمون کنید آیا می توان همزمان متغیرهای x1 و x2 را از مدل 1 حذف کرد؟

ت- قسمت (پ) را با استفاده از روش آزمون فرضیه خطی کلی انجام دهید.

ث- مقدار آماره آزمون H0: 2=0 را در مدل 2 بنویسید و p-مقدار آن را نیز محاسبه کنید.

5- ثابت کنید R2 = corr ( yi , $\hat{y}$i ).

موفق باشید.