

Assignment 4 (Week-4)

Due on 2016-02-26, 05:29 IST

Submitted assignment

1) If r is the coefficient of correlation between two variables, which of the following indicates the strongest relationships? 1 point

- ☒ $r = 0.5$
- ☐ $r = 0.09$
- ☐ $r = -0.6$
- ☐ $r^2 = 0.2$

2) What is the correct expression of R , where S and R are Covariance and Correlation matrices, respectively? 1 point

- ☐ $R = D D \sqrt{S}$
- ☐ $R = D \sqrt{D} S$
- ☐ $R = \sqrt{D} S \sqrt{D}$
- ☒ $R = D^{-1/2} S D^{-1/2}$

3) 2 points

Choose the correct SSCP matrix of $X = \begin{pmatrix} 4 & 2 & 2 \\ 4 & 6 & 8 \\ -2 & 2 & 4 \end{pmatrix}$

☒ $\begin{pmatrix} 36 & 28 & 32 \\ 28 & 44 & 60 \\ 32 & 60 & 84 \end{pmatrix}$

☐ $\begin{pmatrix} 36 & 28 & 30 \\ 28 & 45 & 60 \\ 32 & 60 & 85 \end{pmatrix}$

☐ $\begin{pmatrix} 36 & 28 & 30 \\ 28 & 45 & 60 \\ 32 & 60 & 95 \end{pmatrix}$

☐ $\begin{pmatrix} 36 & 28 & 30 \\ 28 & 45 & 60 \\ 32 & 80 & 95 \end{pmatrix}$

4) Consider the following data set given below,

2 points

$$X = \begin{pmatrix} 2 & 3 & 10 \\ 4 & 2 & 15 \\ 7 & 5 & 20 \end{pmatrix}$$

Choose the correct value of $X^T X$

☐ $\begin{pmatrix} 69 & 49 & 110 \\ 49 & 33 & 160 \\ 220 & 160 & 725 \end{pmatrix}$

☐ $\begin{pmatrix} 69 & 49 & 220 \\ 49 & 33 & 160 \\ 220 & 160 & 725 \end{pmatrix}$

☐

$$\begin{pmatrix} 69 & 49 & 220 \\ 94 & 38 & 160 \\ 220 & 160 & 725 \end{pmatrix}$$



$$\begin{pmatrix} 69 & 49 & 220 \\ 49 & 38 & 160 \\ 220 & 160 & 725 \end{pmatrix}$$

5) Consider the Q4.Choose the correct value of $X^{*T}|X^*$

2 points



$$\begin{pmatrix} 21.67 & 5.67 & 25 \\ 5.67 & 4.67 & 10 \\ 25 & 10 & 50 \end{pmatrix}$$



$$\begin{pmatrix} 12.67 & 5.67 & 25 \\ 5.67 & 4.67 & 10 \\ 25 & 10 & 50 \end{pmatrix}$$



$$\begin{pmatrix} 12.67 & 5.67 & 25 \\ 5.67 & 4.67 & 50 \\ 25 & 10 & 50 \end{pmatrix}$$



$$\begin{pmatrix} 12.67 & 5.67 & 25 \\ 5.67 & 19.67 & 10 \\ 25 & 10 & 50 \end{pmatrix}$$

6) Consider the Q. 4. Choose the correct value of $\tilde{X}^T \tilde{X}$

2 points



$$\begin{pmatrix} 2.0000 & 1.4741 & 11.9868 \\ 1.4741 & 2.0000 & 1.3093 \\ 11.9868 & 1.3093 & 2.0000 \end{pmatrix}$$



$$\begin{pmatrix} 2.0000 & 1.4741 & 1.9868 \\ 1.4741 & 2.0000 & 1.3093 \\ 1.9868 & 1.3093 & 2.0000 \end{pmatrix}$$

☐

$$\begin{pmatrix} 2.0000 & 1.4741 & 1.9868 \\ 1.4741 & 2.0000 & 11.3093 \\ 1.9868 & 11.3093 & 2.0000 \end{pmatrix} \Bigg|$$

☐

$$\begin{pmatrix} 2.0000 & 11.4741 & 1.9868 \\ 11.4741 & 2.0000 & 1.3093 \\ 1.9868 & 1.3093 & 2.0000 \end{pmatrix} \Bigg|$$

7) Consider the Q.4. Choose the correct value of S.

3 points

☒

$$\begin{pmatrix} 6.3333 & 2.8333 & 12.5000 \\ 2.8333 & 2.3333 & 5.0000 \\ 12.5000 & 5.000 & 25.000 \end{pmatrix} \Bigg|$$

☐

$$\begin{pmatrix} 6.3333 & 12.8333 & 12.5000 \\ 12.8333 & 2.3333 & 5.0000 \\ 12.5000 & 5.000 & 25.000 \end{pmatrix} \Bigg|$$

☐

$$\begin{pmatrix} 6.3333 & 2.8333 & 12.5000 \\ 2.8333 & 2.3333 & 15.0000 \\ 12.5000 & 15.000 & 25.000 \end{pmatrix} \Bigg|$$

☐

$$\begin{pmatrix} 6.3333 & 2.8333 & 12.5000 \\ 2.8333 & 2.3333 & 51.0000 \\ 12.5000 & 51.000 & 25.000 \end{pmatrix} \Bigg|$$

8) Consider the Q.4. Choose the correct value of R.

2 points

☒

$$\begin{pmatrix} 1.000 & 0.737 & 0.993 \\ 0.737 & 1.000 & 0.655 \\ 0.993 & 0.655 & 1.000 \end{pmatrix} \Bigg|$$

☐

$$\begin{pmatrix} 1.000 & 0.737 & 0.193 \\ 0.737 & 1.000 & 0.655 \\ 0.193 & 0.655 & 1.000 \end{pmatrix} \Bigg|$$



$$\begin{pmatrix} 1.000 & 8.737 & 0.993 \\ 8.737 & 1.000 & 0.655 \\ 0.993 & 0.655 & 1.000 \end{pmatrix} \Bigg|$$



$$\begin{pmatrix} 1.000 & 0.737 & 0.993 \\ 0.737 & 1.000 & 0.155 \\ 0.993 & 0.155 & 1.000 \end{pmatrix} \Bigg|$$