

STA 4702 - Exam 3 - Practice problems.

(1)

P.1.a. .8856, .6621, 0

P.1.b. TS: 37.12 df=30 $\chi_{30}^2(.05) = 43.773$

P.1.c. TS: 5.464 df=12 $\chi_{12}^2(.05) = 21.026$

P.2. Note $df_{error} = 24$ $r+1 = 5+1 = 6 \Rightarrow A = 30$

P.2.a. $\hat{Y}_1 = 3307.6$ $\hat{Y}_2 = 1487.4$ $\hat{Y}_3 = 1027.7$

P.2.b. TS: 7.899 RL: $\chi_9^2(.05) = 16.919$

Q.3.

P.3.a. $\hat{Y}_1 = -0.522 \times dsq - .447 \times Gsq - .345 \times ORAC - .502 \times RP - .396 \times MCG$

overall total (average) of variables

P.3.b. .5483

P.3.c. .5483, .7290, .8775, .9489, 1.0000

P.3.d. -.765

P.3.e. (1.906, 4.881)

Q.4. P.4.a. $\tilde{L} = \begin{bmatrix} -.9306 & -.3207 \\ -.7297 & .6794 \\ -.9732 & -.2033 \\ -.9760 & .0005 \end{bmatrix}$ $\tilde{\Psi} = \begin{bmatrix} .0311 & & & \\ & .0060 & & \\ & & .0117 & \\ & & & .0474 \end{bmatrix}$

P.4.b. .8215

P.4.c. TS = 12.46 df = 2 RL: $\chi_2^2(.05) = 5.991$

Q.5. P.5.9 $\hat{a}' = [2.0439 \quad 0.2246] \quad \hat{m} = 56.03$

P.5.6. $E\{APEN\} = \frac{195}{1043} = .1870$

Q.6

| X_1 | X_2 | allocate |
|-------|-------|----------|
| .1 | .1 | π_1 |
| .1 | .9 | π_2 |
| .9 | .1 | π_1 |
| .9 | .9 | π_2 |
| .5 | .5 | π_1 |

Q.7. Distance Matrix:

| | F | AP | AM | N | G |
|----|------|------|------|------|---|
| F | 0 | | | | |
| AP | 4.66 | 0 | | | |
| AM | 4.54 | 0.22 | 0 | | |
| N | 3.87 | 8.41 | 8.32 | 0 | |
| G | 3.49 | 1.49 | 1.30 | 7.35 | 0 |

Single Linkage: (AP, AM) (AP, AM, G) (AP, AM, G, F) (AP, AM, G, F, N)

Complete & Average Linkage (AP, AM) (AP, AM, G) $(AP, AM, G)(F, N)$ (AP, AM, G, F, N)

Q.8.

| | H | I | W | A |
|---|-------|-------|-------|-------|
| H | 1.000 | | | |
| I | .050 | 1.000 | | |
| W | -.098 | .744 | 1.000 | |
| A | -.615 | -.346 | -.481 | 1.000 |

All linkages: (I, W) (I, W, H) (I, W, H, A)

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