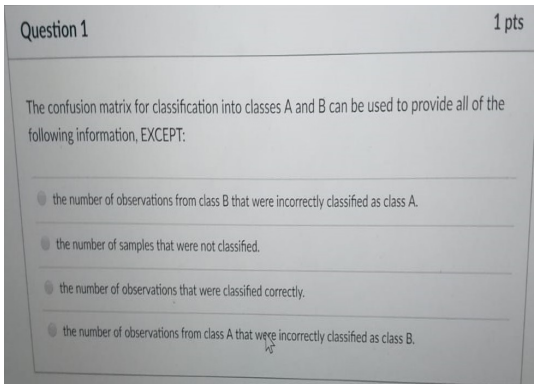
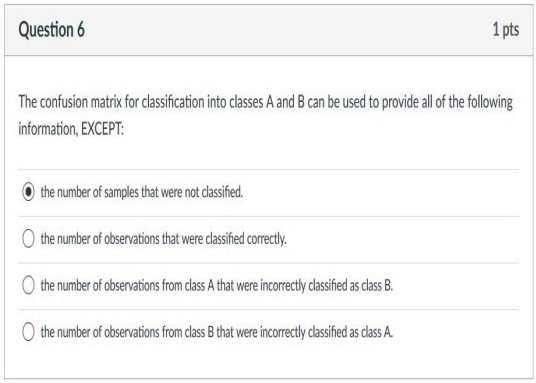
Quiz Review

Question 1 - Confusion Matrix



(a) Current Quiz

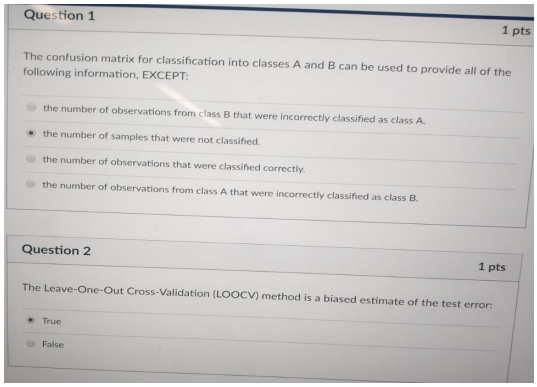


(b) Prior Quiz

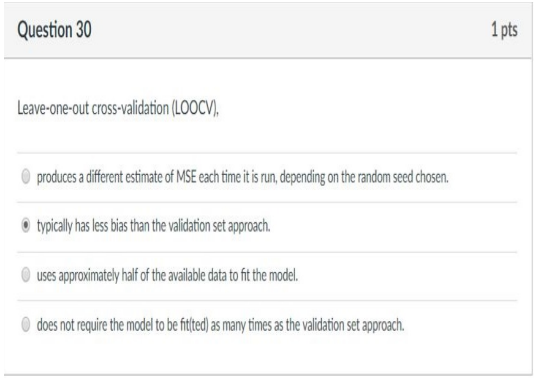
Solution: (2) = 'the number of samples...'

FAITH: 9/10 NOTES: Confusion Matrices show how well classification occurred (correct + incorrect)

Question 2 - LOOCV (Leave-One-Out Cross-Validation)



(a) Current Quiz

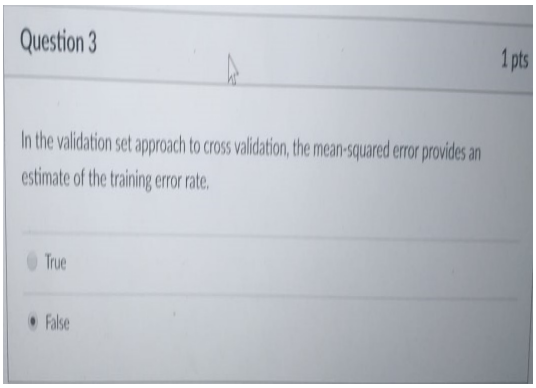


(b) Prior Quiz

Solution: TRUE

NOTES: Note the older quiz answer of 'less bias' but not '0 bias'.

Question 3 - MSE (Mean Squared Error)



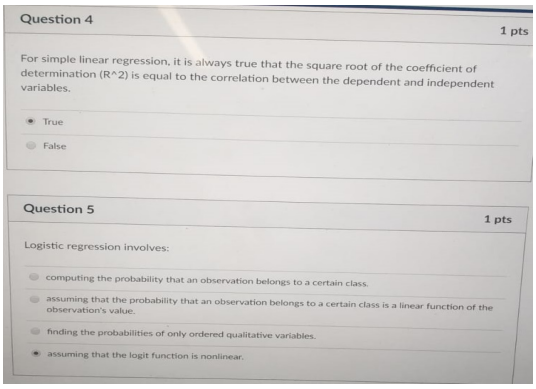
(a) Current Quiz

(b) Prior Quiz

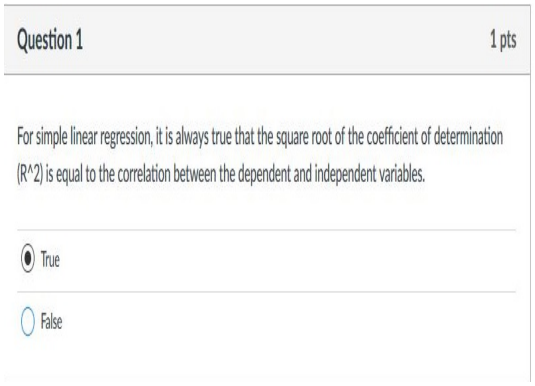
Solution: FALSE

NOTES:

Question 4 - R-Squared (Linear Regression)



(a) Current Quiz

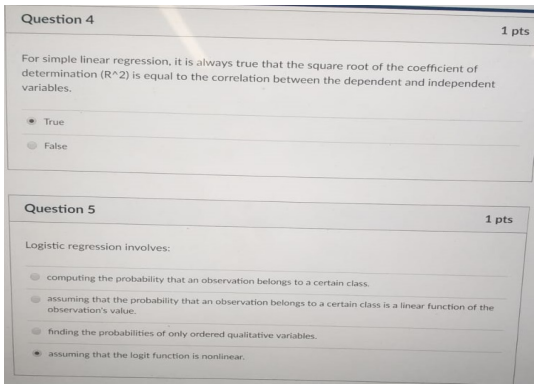


(b) Prior Quiz

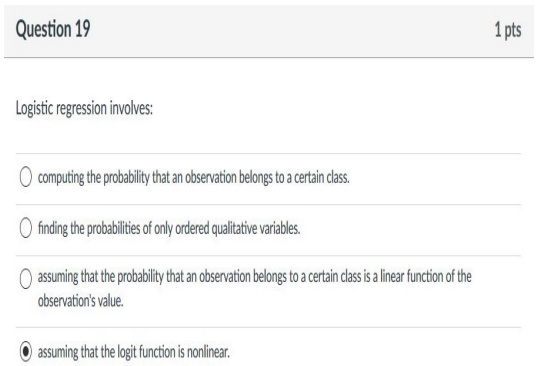
Solution: TRUE

NOTES: N/A

Question 5 - Logistic Regression



(a) Current Quiz

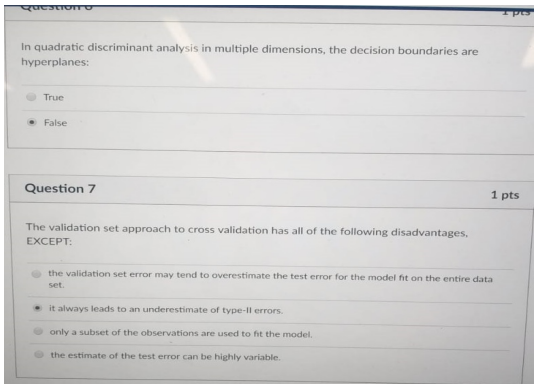


(b) Prior Quiz

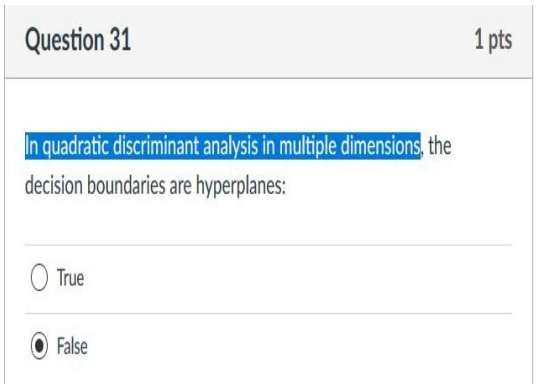
Solution: (4) = 'assuming non-linear...'

NOTES: N/A

Question 6 - QDA (Quadratic Discriminant Analysis)



(a) Current Quiz

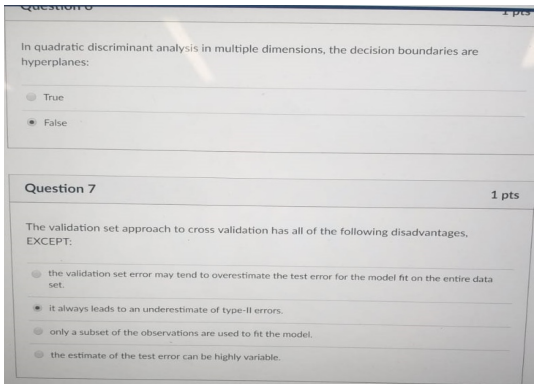


(b) Prior Quiz

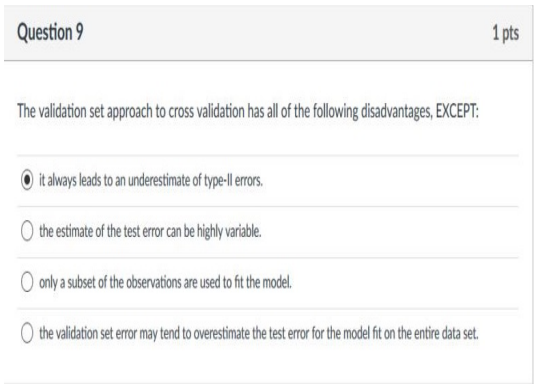
Solution: FALSE

NOTES: N/A

Question 7 - CV (Validation set approach)



(a) Current Quiz

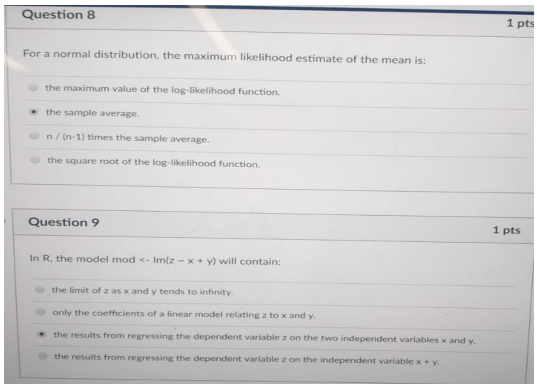


(b) Prior Quiz

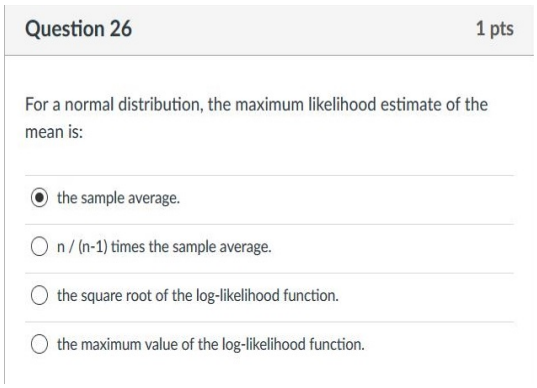
Solution: (2) = '...underestimate type-II errors'

NOTES: N/A

Question 8 - MLE (Normal Distribution)



(a) Current Quiz

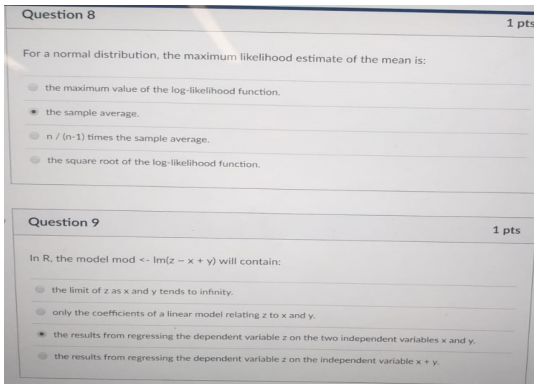


(b) Prior Quiz

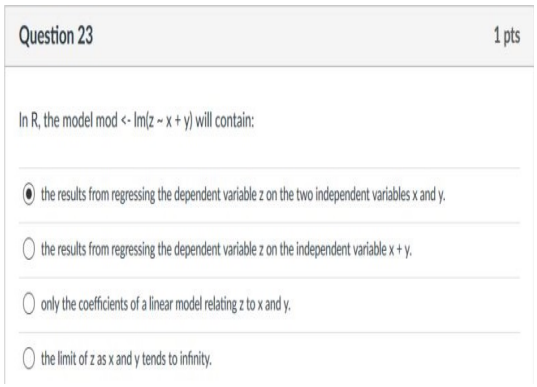
Solution: (2) = 'sample average'

NOTES: N/A

Question 9 - R Code (mod = lm(z x + y))



(a) Current Quiz

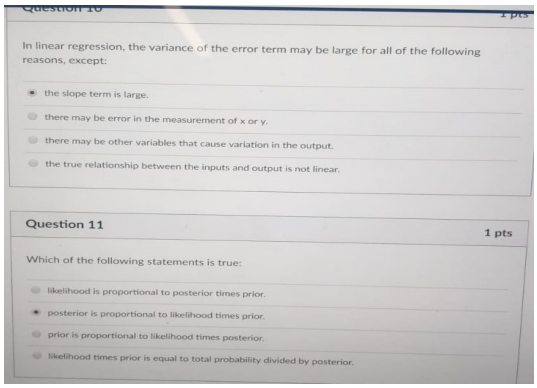


(b) Prior Quiz

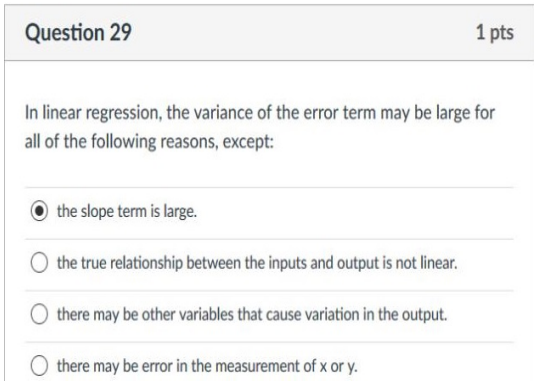
Solution: (3) = '... z on the two independent variables'

NOTES: N/A

Question 10 - Variance (Linear Regression)



(a) Current Quiz

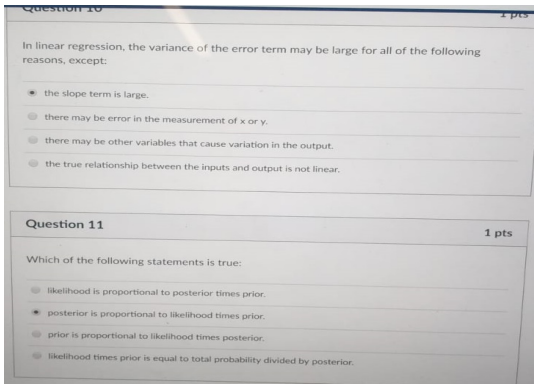


(b) Prior Quiz

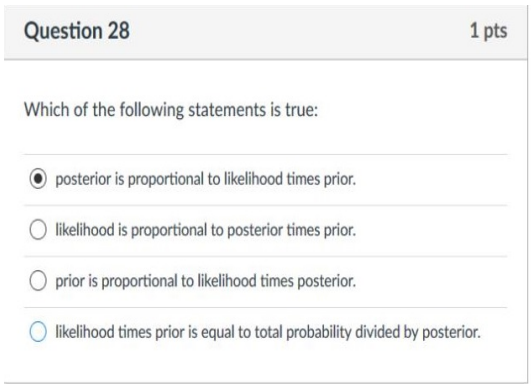
Solution: (1) = 'slope term is large'

NOTES: N/A

Question 11 - Posteriors & likely-hood



(a) Current Quiz

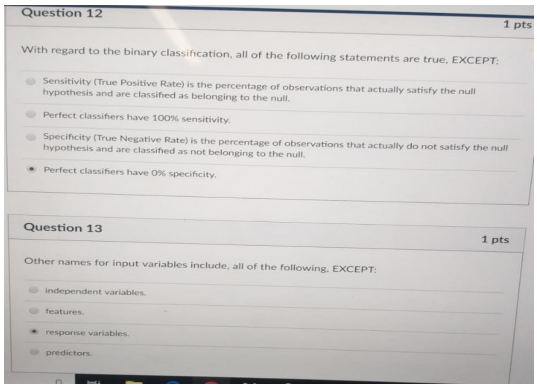


(b) Prior Quiz

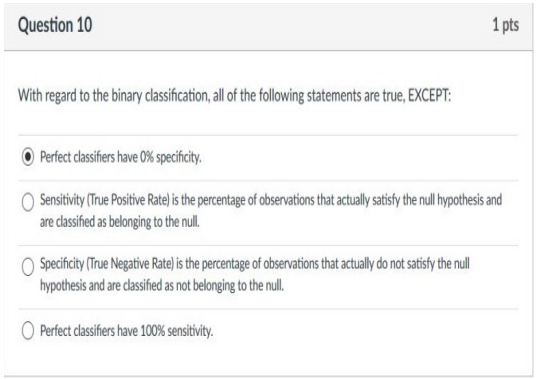
Solution: (2) = 'posterior is proportional to likely-hood times prior'

NOTES: N/A

Question 12 - Binary Classification



(a) Current Quiz

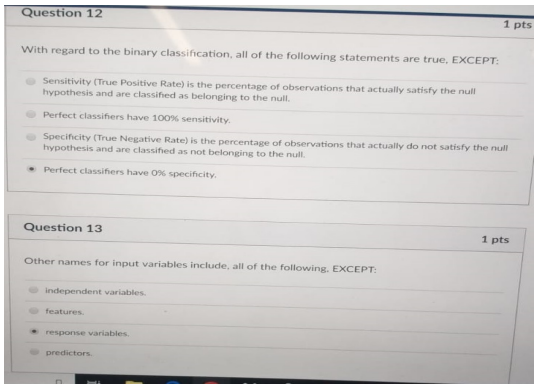


(b) Prior Quiz

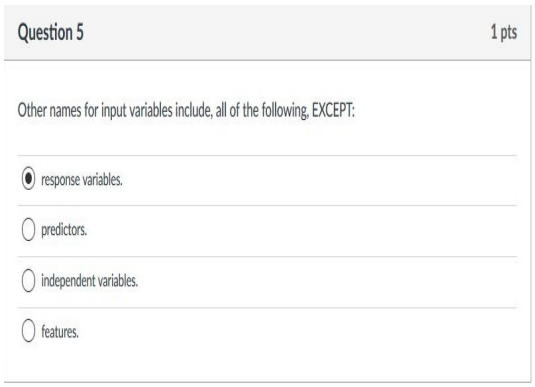
Solution: (4) = '... 0% specificity'

NOTES: N/A

Question 13 - Names of Input Variables



(a) Current Quiz

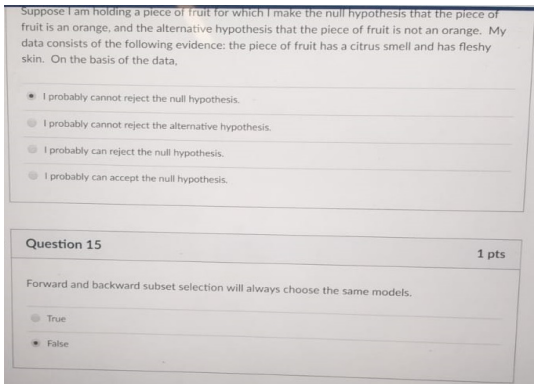


(b) Prior Quiz

Solution: (3) = 'response'

NOTES: N/A

Question 14 - Hypotheses (with fruit)



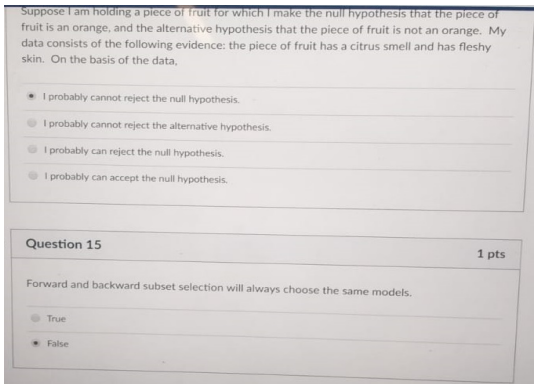
(a) Current Quiz

(b) Prior Quiz

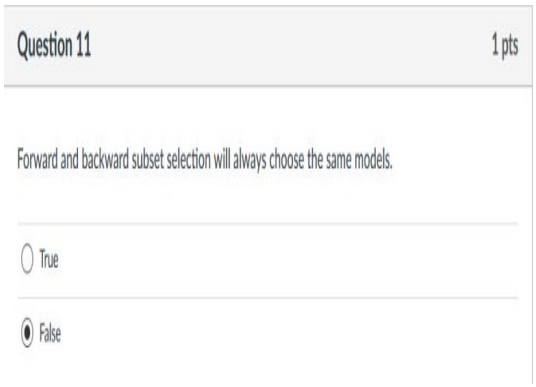
Solution: (1) = '... cannot reject NULL'

NOTES:

Question 15 - Subset Selection (Models & Data)



(a) Current Quiz

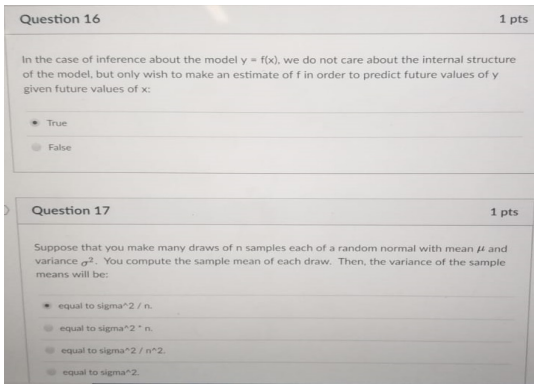


(b) Prior Quiz

Solution: FALSE

NOTES: N/A

Question 16 - Inference and model structure



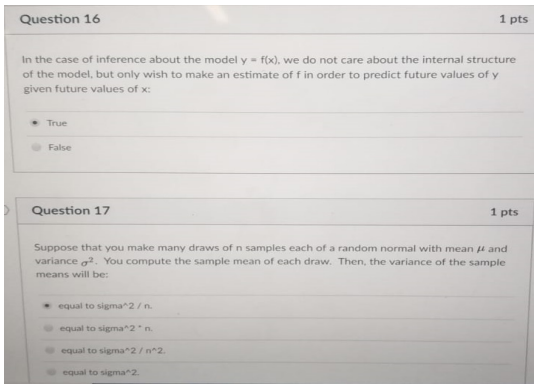
(a) Current Quiz

(b) Prior Quiz

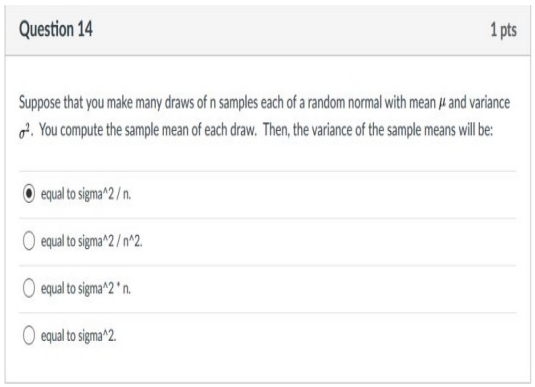
Solution: FALSE

NOTES: N/A

Question 17 - Sample Mean Variance



(a) Current Quiz

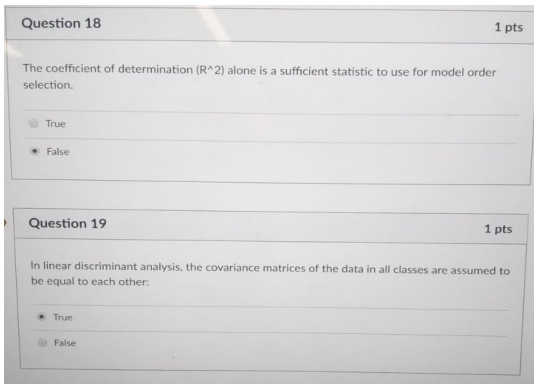


(b) Prior Quiz

Solution: (1) = 'sigma2 / n'

NOTES: N/A

Question 18 - R-Squared as determinant



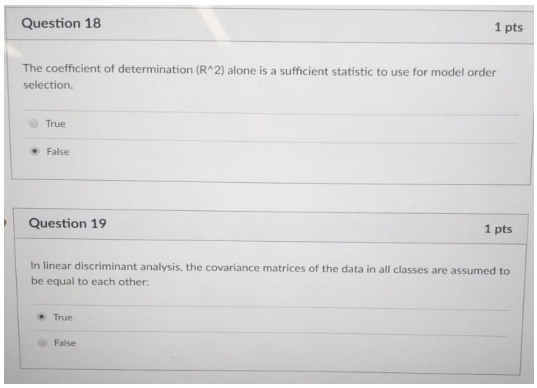
(a) Current Quiz

(b) Prior Quiz

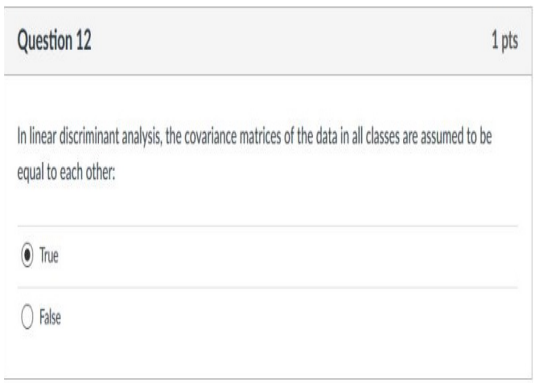
Solution: FALSE

NOTES: N/A

Question 19 - LDA (Linear Discriminant Analysis)



(a) Current Quiz

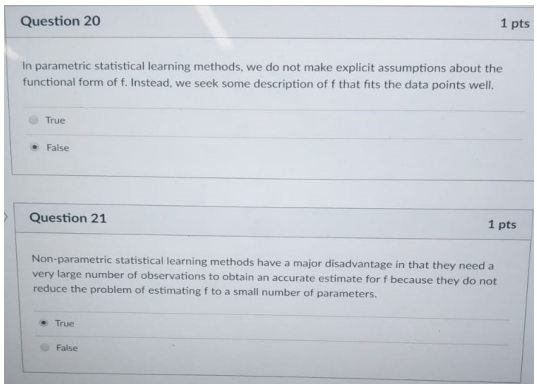


(b) Prior Quiz

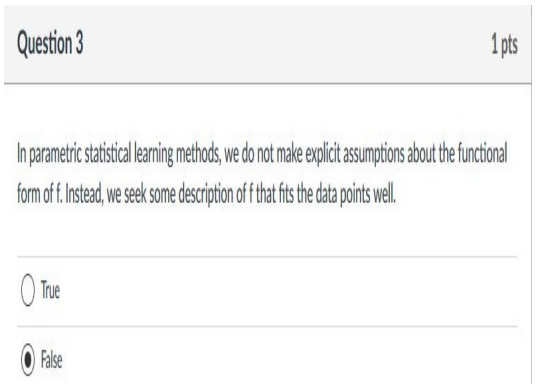
Solution: TRUE

NOTES: N/A

Question 20 - Parametric models



(a) Current Quiz

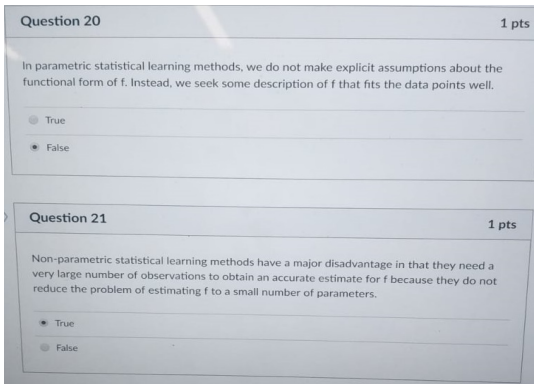


(b) Prior Quiz

Solution: FALSE

NOTES: N/A

Question 21 - Non-parametric models



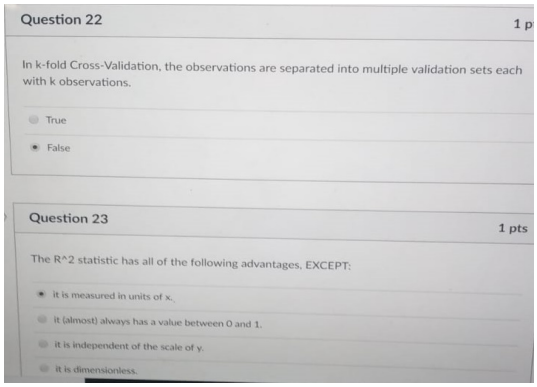
(a) Current Quiz

(b) Prior Quiz

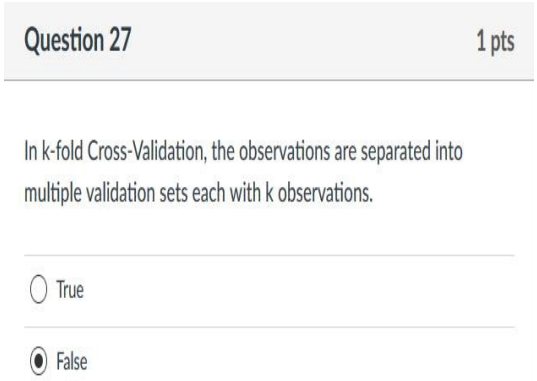
Solution: ? change to FALSE

NOTES:
https://www.investopedia.com/terms/n/nonparametric-statistics.asp
https://www.analyticsvidhya.com/blog/2017/11/a-guide-to-conduct-analysis-using-non-parametric-tests/
https://stats.stackexchange.com/questions/163915/why-would-parametric-statistics-ever-be-preferred-over-nonpar

Question 22 - K-fold CV



(a) Current Quiz

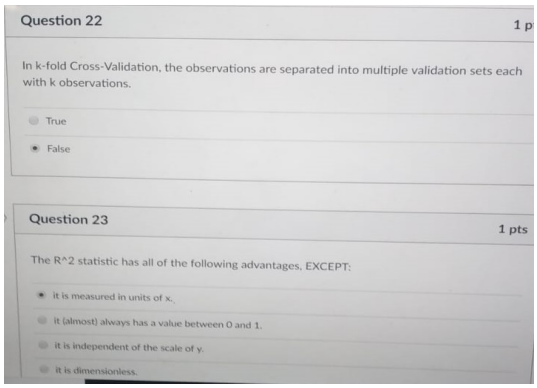


(b) Prior Quiz

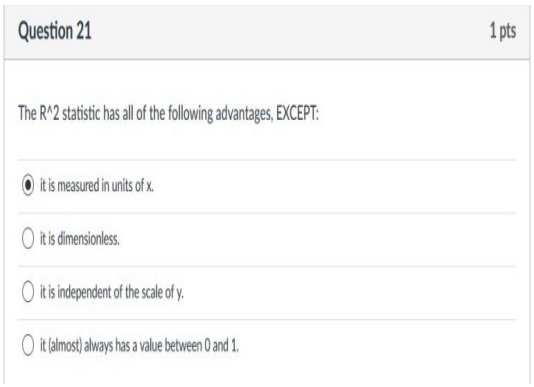
Solution: FALSE

NOTES: N/A

Question 23 - R-Squared advantages



(a) Current Quiz

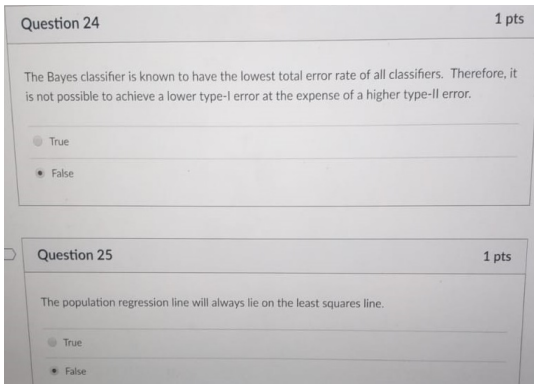


(b) Prior Quiz

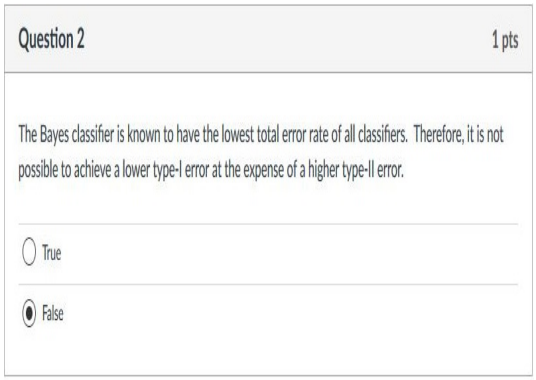
Solution: (1) = 'measured in units of x'

NOTES: N/A

Question 24 - Bayes Classifier



(a) Current Quiz

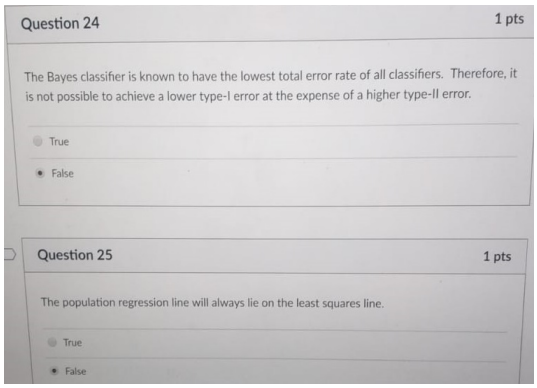


(b) Prior Quiz

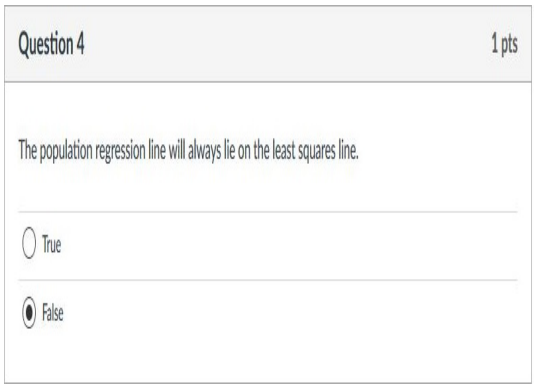
Solution: FALSE

NOTES: N/A

Question 25 - Population Regression Line



(a) Current Quiz

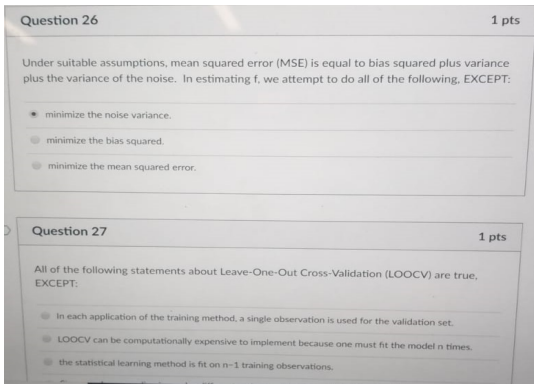


(b) Prior Quiz

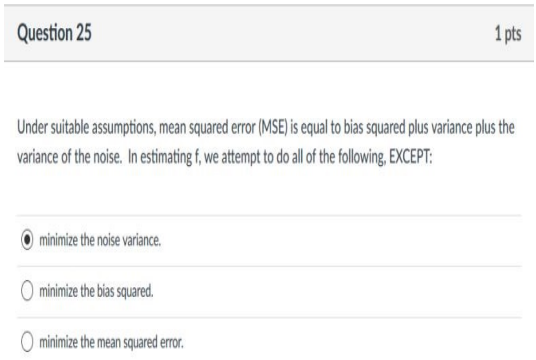
Solution: FALSE

NOTES: N/A

Question 26 - MSE (equation checking)



(a) Current Quiz

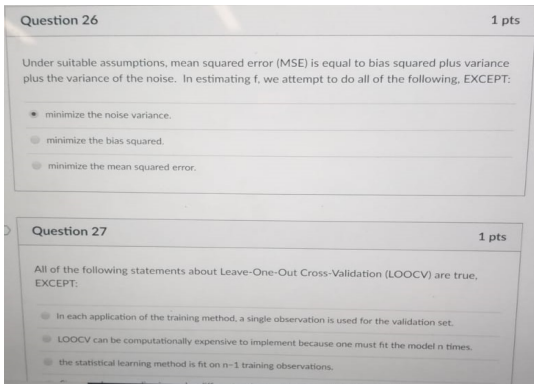


(b) Prior Quiz

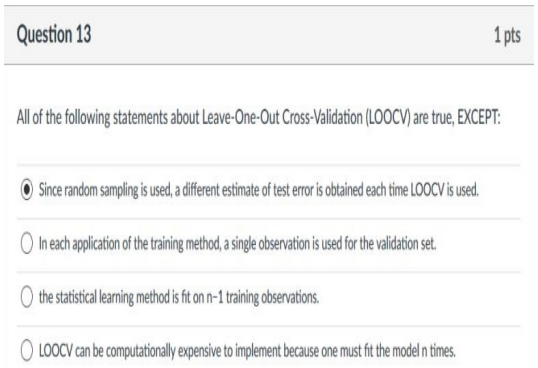
Solution: (1) = 'minimize noise variance'

NOTES: N/A

Question 27 - LOOCV (all true EXCEPT...)



(a) Current Quiz

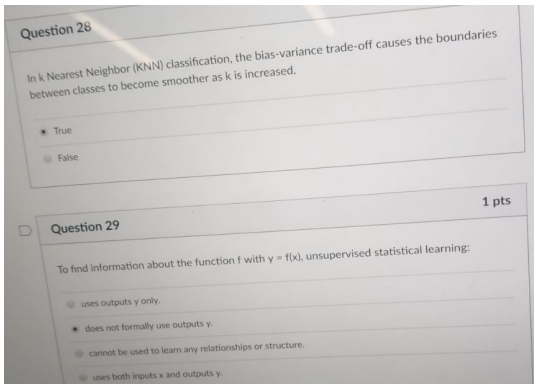


(b) Prior Quiz

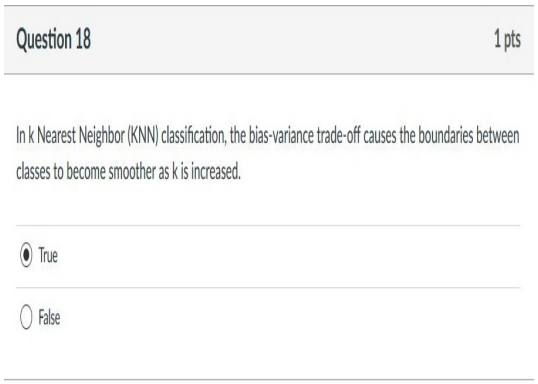
Solution: ??? - Possibly 1 from prior exam

NOTES: CHECK!! User did not submit question with answer. *Possible fix: 6/4

Question 28 - KNN (K Nearest Neighbor)



(a) Current Quiz

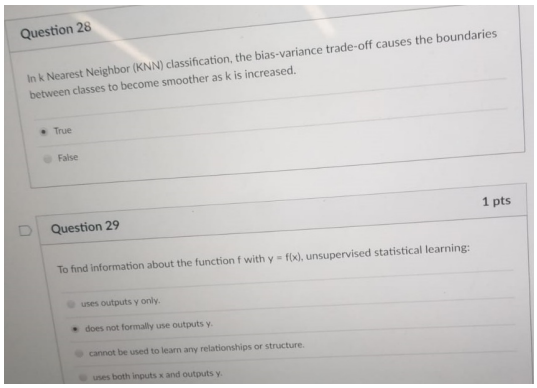


(b) Prior Quiz

Solution: TRUE

NOTES: N/A

Question 29 - Info on y = f(x) (unsupervised learning)



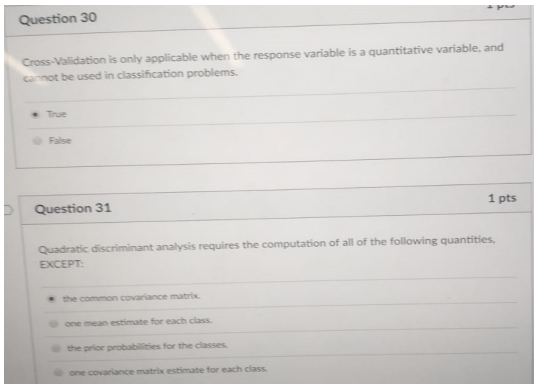
(a) Current Quiz

(b) Prior Quiz

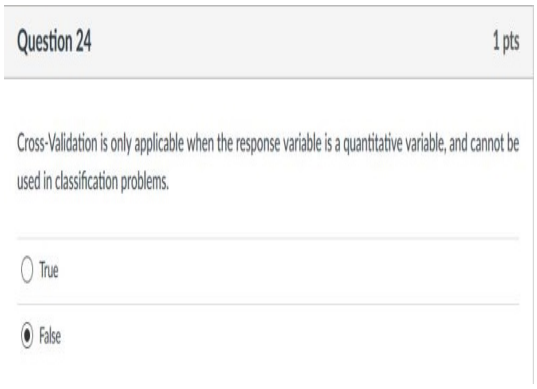
option 2 - use x not y (online research)

NOTES:

Question 30 - CV use for numeric/classification



(a) Current Quiz

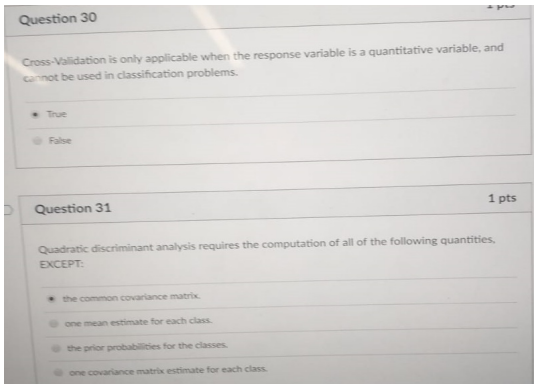


(b) Prior Quiz

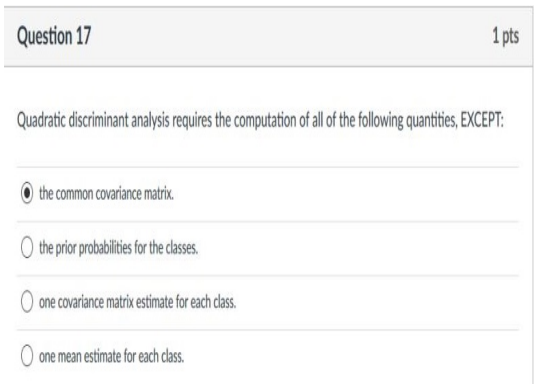
Solution: FALSE

NOTES:

Question 31 - QDA (Quadratic Discriminant Analysis)



(a) Current Quiz

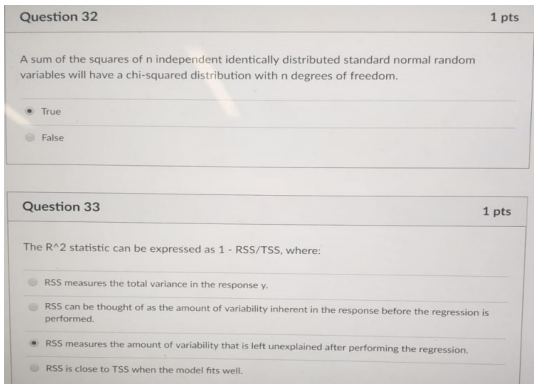


(b) Prior Quiz

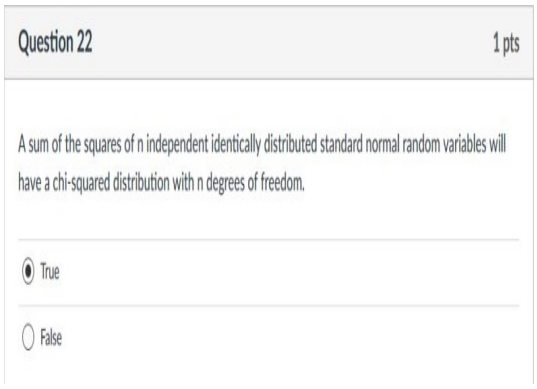
Solution: (1) = 'common covariance matrix'

NOTES: N/A

Question 32 - Sum of Squares (Chi-squared distribution)



(a) Current Quiz

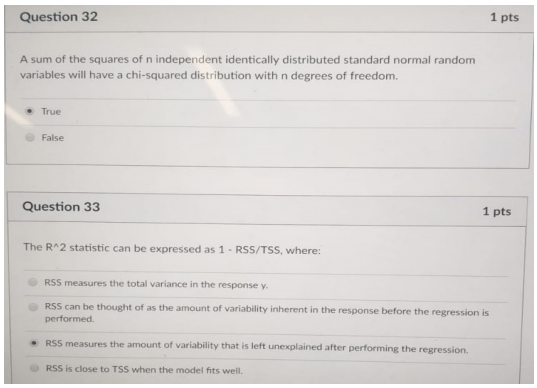


(b) Prior Quiz

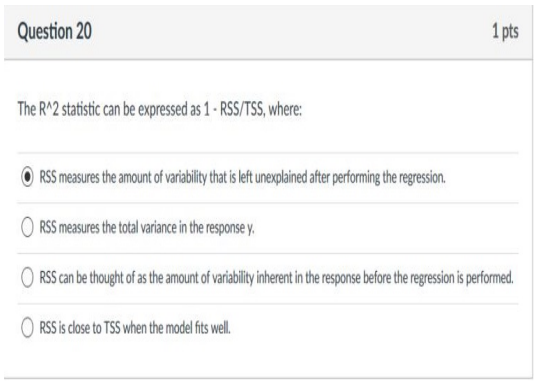
Solution: TRUE

NOTES: N/A

Question 33 - R-Squared equation expression



(a) Current Quiz

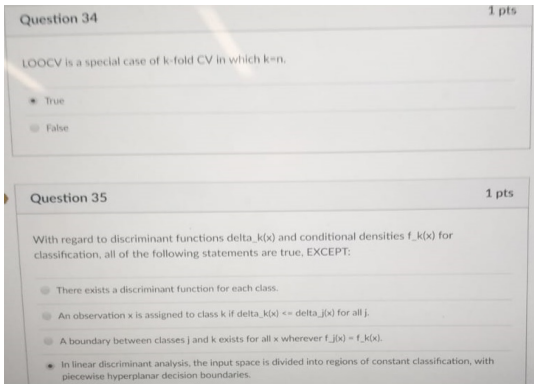


(b) Prior Quiz

Solution: (3) = 'RSS ... explains ... variability ... regression'

NOTES: N/A

Question 34 - LOOCV : special case



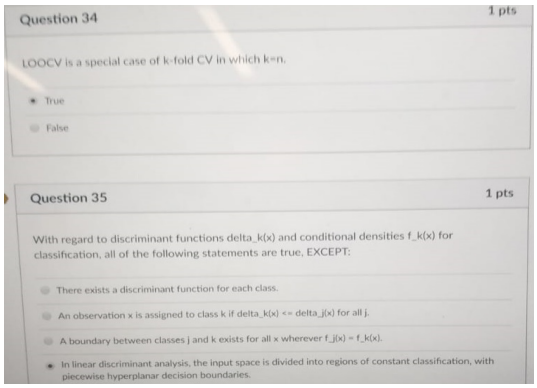
(a) Current Quiz

(b) Prior Quiz

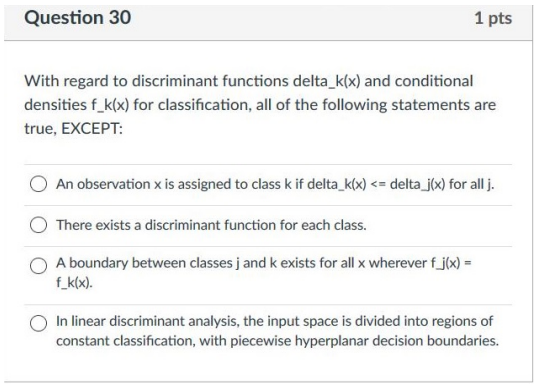
Solution: TRUE

NOTES: N/A

Question 35 - Discriminant Functions / Conditional densities (delta(x), etc...)



(a) Current Quiz

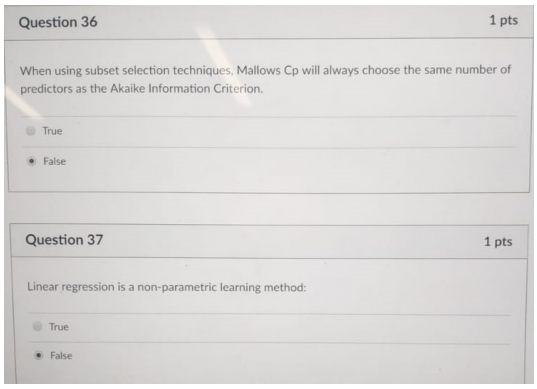


(b) Prior Quiz

Solution: (2) = '¡= is False

NOTES:

Question 36 - Mallows Cp and AIC (model selection criteria)



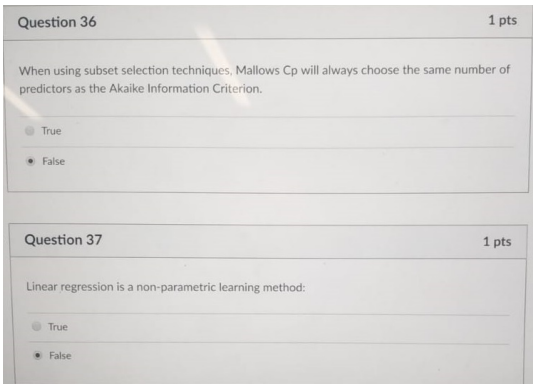
(a) Current Quiz

(b) Prior Quiz

Solution: FALSE (d vs. d(alpha), slides of week 4

NOTES:

Question 37 - Linear regression is non-parametric



(a) Current Quiz

(b) Prior Quiz

Solution: FALSE

NOTES: N/A