Solution 1:

A is QDA, B and C are either LDA or Naive Bayes.

1) LDA can be seen as a special case of QDA if the covariance matrix is equal for all classes: $\Sigma_k = \Sigma \ \forall k$
2) Naive Bayes can be seen as a special case of QDA if the features are conditionally independent given class k:

$$p(\mathbf{x}|y = k) = p((x_1, x_2, ..., x_p)|y = k) = \prod_{j=1}^{p} p(x_j|y = k), \tag{1}$$

which results in diagonal covariance matrices.

3) Naive Bayes and LDA have an intersection if the covariance matrix is equal for all classes: $\Sigma_k = \Sigma \ \forall k$ **and** features are conditionally independent given class k, leaving each class with the same diagonal covariance matrix Σ.