**Quiz-2**

1. **True**
2. **False**

**Reason:** When the complexity of a model increases, it leads to overfitting after a certain point which causes increase in test error. This is because as model complexity increases, the model tends to get overly suited for the training data (leading to drop in training error), but unsuited for new unseen data, leading to increase in test error.

1. **False**

**Reason:** Maximum a posteriori (MAP) approach may be used with certain assumptions regarding mean and precision which will make it a parametric approach in such cases.

1. **True**
2. **True**
3. **False**

**Reason:** In histogram estimation we require the human-set parameter in the form of bin size.

1. **False**

**Reason:** Principle component analysis (PCA) finds projection that minimizes the reconstruction error by restricting to vectors in feature space that best minimize the reconstruction error.

1. **True**
2. **False**

**Reason:** 1-NN and 3-NN classify data on basis of 1 and 3 nearest neighbor respectively. This gives rise to possibility that the conclusion derived from 1-NN and 3-NN may be different. For eg., a data-point in a dataset with many categories has it first nearest neighbor from, say, category A and the 2 following nearest neighbors(2nd and 3rd) from category B. This will make the conclusion of 1-NN and 3-NN different.