1. The K −means algorithm is an Unsupervised learning algorithm
   Ans b
2. Unsupervised learning Requires data, but NO labels
   Ans d
3. The cluster assignment indicator $\alpha_4(5)$ Equals 1 when $\bar{\mathbf{x}}(5)$ belongs to $\mathcal{C}_4$ and 0 otherwise
   Ans d
4. The K-means algorithm is imported in PYTHON as
   from sklearn.cluster import KMeans
   Ans c
5. The metric used to determine the number of clusers for K-means is SSE
   Ans a
6. To generate the clusters in PYTHON we employ
   from sklearn.datasets import make_blobs
   Ans c
7. The K −means **cost-function** to minimize is given as
   $$\min \sum_{i=1}^{K} \sum_{j=1}^{M} \alpha_i(j) \|\bar{\mathbf{x}}(j) - \bar{\boldsymbol{\mu}}_i\|^2$$
   Ans b
8. To determine the cluster in iteration l, we assign $\bar{\mathbf{x}}(j)$ to the closest centroid $\bar{\boldsymbol{\mu}}_i^{(l-1)}$
   Ans d
9. The centroids for the given clusters can be determined as
   $$\frac{\sum_{j:\bar{\mathbf{x}}(j)\in\mathcal{C}_i} \bar{\mathbf{x}}(j)}{\sum_{j:\bar{\mathbf{x}}(j)\in\mathcal{C}_i} 1}$$
   Ans b
10. The centroids of the clusters are determined as Average of all points assigned to cluster i in iteration l
    Ans a