Machine Learning Assignment-2 Answer Sheet

Q 1 : Ans : b) 1 and 2

Q 2 : Ans : d) 1, 2 and 4

Q 3 : Ans : a) True

Q 4 : Ans : a) 1 only

Q 5 : Ans : b) 1

Q 6 : Ans : b) No

Q 7 : Ans : a) Yes

Q 8 : Ans : d) All of the above

Q 9 : Ans : a) K-means clustering algorithm

Q 10 : Ans : d) All of the above

Q 11 : Ans : d) All of the above

Q 12 : Ans : **The K-means clustering algorithm is sensitive to outliers**, because a mean is easily influenced by extreme values. K-medoids clustering is a variant of K-means that is more robust to noises and outliers.

Q 13 : Ans : **Advantages of k-means :**

- Relatively simple to implement.
- Scales to large data sets.
- Guarantees convergence.
- Can warm-start the positions of centroids.
- Easily adapts to new examples.
- Generalizes to clusters of different shapes and sizes, such as elliptical clusters.

Q 14 : Ans : One of the significant drawbacks of K-Means is its **non-deterministic nature**. K-Means starts with a random set of data points as initial centroids. This random selection influences the quality of the resulting clusters. Besides, each run of the algorithm for the same dataset may yield a different output.