Higher Secondary (Vocational)
CLASS XI
Semester - 2
Foundation Course on AI ML

Time Allowed: 1 hour 15 minutes   **Full Marks: 30**

A. Answer any 5 (five) questions   (2 * 5 = 10)

1. Explain the purpose of the `numpy.array()` function in Python.
2. Define Artificial Intelligence (AI) and give an example of its application in daily life.
3. What is an artificial neural network, and why is it often compared to the human brain?
4. What is a Data Frame in Pandas, and how is it different from a Series?
5. What is Scikit-Learn, and name two common tasks it is used for in machine learning.
6. How regression is different from classification?
7. How does the groupby() function in Pandas work, and what is it typically used for?
8. In machine learning, what is the difference between training data and test data?

B. Answer any 5 (five) questions   (4 * 5 = 20)

1. Explain how to create a NumPy array and demonstrate indexing and slicing on it.   4
2. Define Artificial Intelligence (AI) and explain its importance. Briefly describe two significant milestones in the historical development of AI.   4
3. Differentiate between narrow AI and general AI, providing examples of each. Why is narrow AI more commonly used today?   4
4. Describe the types of machine learning (supervised, unsupervised, and reinforcement learning) and give one example for each type. How do these types differ in their approach to training models?   4
5. Explain the steps to install and import Scikit-Learn in Python. Why is Scikit-Learn widely used for machine learning tasks?   4
6. Explain the concept of linear regression and its use in regression problems. How does linear regression make predictions based on input data?   4
7. Describe K-means clustering and how it works for unsupervised learning. What kind of data is this technique best suited for, and what is the role of "centroids" in K-means?   4