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| a) | Give a definition of the term “machine learning”. Explain with an example the concept of  learning in the context of machine learning. |  |
| b) | Describe in detail applications of machine learning in any five different knowledge domains. |  |
| c) | Name and define different types and forms of data that are encountered in the machine learning process with appropriate examples. |  |
| d) | Describe with an example the concept of association rule learning. |  |
| e) | What is the classification problem in machine learning? Describe three real life situations in  different domains where such problems arise. |  |
| f) | What is meant by a regression problem? Illustrate the idea with examples. Describe briefly different regression models. |  |
| g) | Describe in detail with examples the different types of learning. |  |
| h) | Define version space and illustrate it with an example. |  |
| i) | Name and define Procedures for learning multiple classes. |  |
| j) | What is meant by “noise” in data? What are its sources and how it is affecting results? |  |
| k) | State Bayes theorem and illustrate it with an example. |  |
| l) | Given an instance X = (x1, x2,…., xn) of a feature vector and a class label ck, explain how Bayes theorem is used to compute the probability P(ck │X). |  |
| m) | Explain the MLE method for estimating the parameters of different probability distribution. |  |
| n) | Discuss linear/polynomial regressions with an examples. |  |