CE1.2-R4: MACHINE LEARNING

NOTE:

> 1. **Answer question 1 and any FOUR from questions 2 to 7.**
> 2. **Parts of the same question should be answered together and in the same sequence.**

Time: 3 Hours   **Total Marks: 100**

1.
a) List the real life example of machine learning application?
b) What is overfitting in machine learning?
c) List any five algorithms of machine learning.
d) Define artificial neural network.
e) Discuss supervised learning.
f) What is competitive learning?
g) Define inductive logic programming in machine learning?

(7x4)

2.
a) Define machine learning with example and list advantages of machine learning.
b) What is concept learning?
c) How decision tree works as classifier?
d) Explain bias and variance error in machine learning. Provide an example to understand the concept.

(6+4+4+4)

3.
a) What are different learning techniques in machine learning?
b) Explain ensemble learning?
c) Explain cross validation and its usage in machine learning techniques.

(6+6+6)

4.
a) Explain decision tree and briefly discuss decision tree learning.
b) Explain statistical hypothesis testing and its Application area.
c) What are the limitation and usage of perceptron in neural network?

(6+6+6)

5.
a) Explain neurons and biological motivation for neural network.
b) Explain gradient descent algorithm.
c) List the advantages and disadvantages of neural network.
d) What is back propagation in neural network?

(4+6+4+4)

6.
a) What is support vector machine? How it works?
b) List the advantages and disadvantages of support vector machine.
c) What is Markov net?
d) Discuss Naive Bayes Algorithm.

(6+4+3+5)

7. Write short note on followings:
a) Naive Bayes learning algorithm.
b) Candidate elimination algorithm.
c) Rough set and fuzzy set.

(3x6)