B.E. Eighth Semester (Information Technology) (C.B.S.)

Elective - III : Machine Learning

P. Pages : 2 **KNT/KW/16/7623**

Time : Three Hours * 0 2 4 5 * Max. Marks : 80

Notes :
1. All questions carry marks as indicated.
2. Solve Question 1 OR Questions No. 2.
3. Solve Question 3 OR Questions No. 4.
4. Solve Question 5 OR Questions No. 6.
5. Solve Question 7 OR Questions No. 8.
6. Solve Question 9 OR Questions No. 10.
7. Solve Question 11 OR Questions No. 12.
8. Due credit will be given to neatness and adequate dimensions.
9. Assume suitable data whenever necessary.
10. Illustrate your answers whenever necessary with the help of neat sketches.

1. a) What is machine learning? Enumerate & Describe various applications of it. **7**

b) Explain Linear models for Regression with example. **6**

OR

2. a) Explain different types of machine learning with suitable example. **8**

b) Describe Bayesian Linear regression along with it's importance. **5**

3. a) Explain importance & use of Discriminate functions. **7**

b) Describe dual perception algorithm with suitable example. **7**

OR

4. a) Describe perception learning algorithm with suitable example. **7**

b) Write a note on : **7**
i) Learning non-linear hypothesis with perception.
ii) Two layers universal approximations.

5. a) Explain K-means algorithm along with its applications. **7**

b) What is factor analysis? Explain it's importance. **6**

OR

6. a) Write a note on : **6**
i) Regularization.
ii) Boosting.

b) Explain Bayesian Neural Network along with its applications. **7**

7. a) What are limitations of inference machines? Explain. **6**

b) Write a note on : **7**
i) Approximation & Estimation Errors.
ii) Hypothesis class.

OR

8. a) Explain K-nearest neighbour algorithm with example. **7**

b) Describe sample complexity in detail. **6**

9. a) Explain the importance & applications of support vector machine. **7**

b) What is structural risk minimization? Explain in detail. **7**

OR

10. a) Explain the importance of maximal margin classifier. **7**

b) Explain the concept of finite covering with suitable explanation. **7**

11. a) What is model based learning? Explain it's importance. **7**

b) Describe the process of Occam's learning in detail. **6**

OR

12. a) Write a note on : **6**
i) Value Iteration.
ii) Eligibility Traces.

b) Explain the concept of Reinforcement learning with suitable example. **7**

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