

Name :  
Reg No :

{C}

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY  
07 THRISSUR CLUSTER

**SECOND SEMESTER M.TECH. DEGREE EXAMINATION APRIL 2018**

**Computer Science And Engineering**

**Computer Science And Engineering**

**07CS 6106 MACHINE LEARNING AND LANGUAGE PROCESSING**

**Time : 3 hours**

**Max.Marks: 60**

Answer all six questions. Part 'a' of each question is compulsory.

Answer either part 'b' or part 'c' of each question

Q.no.	Module 1	Marks
1a	Write an algorithm for k-nearest neighbour classification given k and n, the number of attributes describing each tuple.	4
<b>Answer b or c</b>		
b	Briefly outline the major steps of decision tree classification? & Why tree pruning useful in decision tree induction?	5
c	Why naive Bayesian classification is called naive? Briefly outline the major ideas of naive Bayesian classification?	5

Q.no.	Module 2	Marks
2a	Differentiate logistic regression and linear regression?	4

**Answer b or c**

- b Suppose you have the following data. Use the data to predict the value  $y_n$  for  $x=7$  5

x	y
1	16
2	23
4	35
5	44
6	40

- c Briefly explain Multi label classification. 5

Q.no.	Module 3	Marks
-------	----------	-------

- 3a** Explain Markov Model and Explain How HMM can be used for Classification of data. **4**

**Answer b or c**

- b** Use k-Means clustering to following data **5**

1 4 6 7 8

Given number of cluster =2  
Initial cluster  $c_1=0$  &  $c_2=9$

- c** Explain Briefly about Expectation Maximization Algorithm and its applications **5**

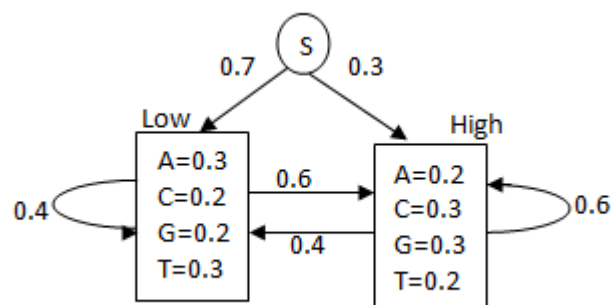
Q.no.	Module 4	Marks
-------	----------	-------

- 4 a** Write short note on maximum entropy model **4**

**Answer b or c**

- b** What are the 3 basic problem of Hidden Markov Model ? **5**

- c** Use forward algorithm to compute the probability distribution of the observation A,T,T,C **5**



<b>Q.no.</b>	<b>Module 5</b>	<b>Marks</b>
<b>5a</b>	What is part of speech (POS) tagging? What is the simplest approach to building a POS tagger?	<b>5</b>

**Answer b or c**

- |          |                                            |          |
|----------|--------------------------------------------|----------|
| <b>b</b> | Briefly explain probabilistic CFG.         | <b>7</b> |
| <b>c</b> | Explain N gram model with proper examples. | <b>7</b> |

<b>Q.no.</b>	<b>Module 6</b>	<b>Marks</b>
<b>6a</b>	Explain machine translation and its applications in natural language processing	<b>5</b>

**Answer b or c**

- |          |                                                           |          |
|----------|-----------------------------------------------------------|----------|
| <b>b</b> | Explain the architecture of automatic speech recognition. | <b>7</b> |
| <b>c</b> | Write a short note on information extraction              | <b>7</b> |