

## NLP Quiz 5, 25th Oct

10 marks , 15 mins

**Question 1.** What is the main difference between an HMM vs MEMM ?

[ 1+1 ]

i)

ii) How can this difference be useful ?

**Question 2.** Calculate the entropy for the following two models. Which model would you use?

(There are 5 possible tags that a language can take. Probability of each tag occurring has been given)

[ 2 +1 ]

Model A: (Possible tags { T2, T5} )					Model B: (Possible tags {T1, T2, T3, T4} )				
T1	T2	T3	T4	T5	T1	T2	T3	T4	T5
0	2/3	0	0	1/3	1/4	1/4	1/4	1/4	0

**Question 3.**( All features are indicator functions)

[ 2 ]

Class 1	Feature	1	0	0	0
	Weight	2	1.9	0	1

Class 2	Feature	1	1	0	1
	Weight	1.4	0.1	3	0.4

Given indicator function values and weights, which class will the sample belong ?

4.

Convert the following grammar to CNF.

[ 3 ]

S -> NP VP	N -> people
S -> VP	N -> fish
VP -> V NP	N -> tanks
VP -> V	N -> rods
VP -> V NP PP	V -> people
VP -> V PP	V -> fish
S -> NP VP	V -> tanks
S -> VP	P -> with
VP -> V NP	P
VP -> V	
VP -> V NP PP	
VP -> V PP	