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Code No: 844AC

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
MCA IV Semester Examinations, October/ November - 2020
MACHINE LEARNING

Time: 2Hours **Max.Marks:75**

Answer any five questions
All questions carry equal marks
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1. Construct decision tree for the training examples given in the table for **Play tennis** domain using Gain Ratio algorithm. Show clearly formulae used and calculations done at each stage for building the decision tree using the algorithm. [15]

Outlook	Temp	Humidity	Windy	Playtennis
Sunny	75	70	true	play
Sunny	80	90	true	no play
Sunny	85	85	false	no play
Sunny	72	95	false	no play
Sunny	69	70	false	play
Overcast	72	90	true	play
Overcast	83	78	false	play
Overcast	64	65	true	play
Rainy	81	75	false	play
Rainy	71	80	true	no play
Rainy	65	70	true	no play
Rainy	75	80	false	play
Rainy	68	80	false	play

2. Write the ID3 algorithm for Decision tree learning. [15]

3. Write the derivation of Back propagation Learning Rule. [15]

4. Write the Back propagation Learning Algorithm for Multi layer networks. [15]

5. Write following algorithms:
   a) Gibb's Algorithm b) EM algorithm [15]

6. Explain the working of Bayesian belief networks. [15]

7. Explain the evaluation problem of HMMs. [15]

8. Explain the Inductive-Analytical approaches to learning. [15]

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