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GIET MAIN CAMPUS AUTONOMOUS GUNUPUR – 765022

B. Tech Degree Examinations, June – 2021

(Sixth Semester)

BCSPE6040 / BITPE6040– MACHINE LEARNING

(Common to CSE and I.T)

Time: 2 hrs

Maximum: 50 Marks

Answer ALL Questions

The figures in the right hand margin indicate marks.

PART – A: (Multiple Choice Questions)

(1 x 10 = 10 Marks)

<u>Q.1. Answer ALL questions</u>	[CO#]	[PO#]
a. What is Machine learning?	1	1
(i) The autonomous acquisition of knowledge through the use of computer programs		
(ii) The autonomous acquisition of knowledge through the use of manual programs		
(iii) The selective acquisition of knowledge through the use of computer programs		
(iv) The selective acquisition of knowledge through the use of manual programs		
b. Which of the factors affect the performance of learner system does not include?	1	2
(i) Representation scheme used		
(ii) Training scenario		
(iii) Type of feedback		
(iv) Good data structures		
c. What is specified at any non-leaf node in a decision tree?	2	1
(i) Class of instance		
(ii) Data value description		
(iii) Test specification		
(iv) Data process description		
d. Which of the following properties is false in the context of decision tree?	2	2
(i) High bias		
(ii) High variance		
(iii) Lack of smoothness of prediction surfaces		
(iv) unbound parameter set		
e. A _____ is a decision support tool that uses a tree-like graph or model of decisions and their possible consequences, including chance event outcomes, resource costs, and utility.	2	2
(i) Decision tree		
(ii) Graphs		
(iii) Trees		
(iv) Neural Networks		
f. Which of the following are the advantage/s of Decision Trees?	2	2
(i) Possible Scenarios can be added		
(ii) Use a white box model, If given result is provided by a model		
(iii) Worst, best and expected values can be determined for different scenarios		
(iv) All of the mentioned		
g. Naina receives emails that consists of 18% spam of those emails. The spam filter is 93% reliable i.e., 93% of the mails it marks as spam are actually a spam and 93% of spam mails are correctly labelled as spam. If a mail marked spam by her spam filter, determine the probability that it is really spam.	3	2
(i) 50%		
(ii) 84%		
(iii) 39%		
(iv) 63%		

h. Give the advantages of EM algorithm	3	3
(i) It has slow convergence.	(ii) It makes convergence to the local optima only	
(iii) Solutions to the M-steps often exist in the closed form	(iii) All the mentioned	
i. Which of the following is finally produced by Hierarchical Clustering?	4	3
(i) final estimate of cluster centroids	(ii) tree showing how close things are to each other	
(iii) assignment of each point to clusters	(iv) all of the mentioned	
j. Which of the following clustering requires merging approach?	4	3
(i) Partitional	(ii) Hierarchical	
(iii) Naive Bayes	(iv) None of the mentioned	

PART – B: (Short Answer Questions)

(2 x 5 = 10 Marks)

Q.2. Answer ALL questions

	[CO#]	[PO#]
a. What is meant by Boolean function?	1	1
b. Give the example for hypothesis fitness.	1	2
c. How Baldwin Effect is differ from Lamarckian Evolution?	2	1
d. State Gibbs algorithm.	3	2
e. Give the difference between lazy and eager methods.	4	2

PART – C: (Long Answer Questions)

(6 x 5 = 30 Marks)

Answer ANY FIVE questions

	Marks	[CO#]	[PO#]
3. How the Heuristic Space Search implemented and give the working procedure.	(6)	1	1
4. Demonstrate the significant aspect of Boolean functions and their classes with suitable example.	(6)	1	1
5. Write a prototypical genetic algorithm for the fitness function for ranking candidate hypotheses	(6)	2	1
6. Develop an algorithm for stacking the blocks that spells the word "universal"	(6)	2	1
7. Illustrate the derivation of k means algorithm.	(6)	3	2
8. Create a Sample Python code Using EM to Parameterize a Gaussian Mixture Model	(6)	3	2
9. With the help of weighted majority algorithm prove Relative mistake bound	(6)	4	3
10. How the radial basis function is implemented in machine learning	(6)	4	3

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