Oct/Nov 2023

Total No. of Questions : 5]

SEAT No. :

P5791

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[6120]-114

Second Year M.C.A. (Management)

IT - 34 : KNOWLEDGE REPRESENTATION & ARTIFICIAL INTELLIGENCE - ML, DL

(2020 Pattern) (Semester - III)

Time : 2½ Hours] *[Max. Marks : 50*

Instructions to the candidates:

1) *All questions are compulsory.*
2) *Use of scientific calculator is allowed.*
3) *Figures on the right side indicate full marks.*

Q1) a) What is knowledge? Explain various types of knowledge with example. **[5]**

b) Explain of data essencials and its analysis in machine learning. **[5]**

OR

c) Explain the wumpus world problem to represent knowledge with its steps for reaching the target. **[5]**

d) Explain classification in machine learning. Also explain difference between regression and classification in brief. **[5]**

Q2) a) Consider the argument **[6]**
"All dogs bark.
Some animals are dogs.
Therefore some animals bark
Determine whether the conclusion is valid arguments or not.

b) Construct the truth - table for the following. **[4]**
i) $(p \wedge q) \wedge \neg(p \vee q)$
ii) $(p \wedge q) \rightarrow p$

OR

c) Translate following sentences in FOL. **[6]**
i) All men are people
ii) John buys a pumpkin
iii) No boys get any doll
iv) Some students win match
v) Ravi eats everything thay ajay eats
vi) It is a warm day

d) Explain rule of inferences. **[4]**

P.T.O.

Q3) a) Perform k-means clustering and show all the calculations at each iteration, to form the final cluster. Assume the initial clusters are A, E & H. **[6]**

Points	A	B	C	D	E	F	G	H	I	J
x1	3	8	4	2	7	5	3	4	6	9
x2	3	5	4	4	7	8	5	8	9	6

b) Explain Naive Bayes classification. **[4]**

OR

c) Calculate the regression equation of x on y from the data given below. **[6]**

Price	10	12	13	12	16	15
Amount demanded	40	38	43	45	37	43

estimat the likely demand when price in Rs. 20.

d) Explain the following terms with reference to creating maching learning models. **[4]**

i) Training dataset

ii) Testing dataset

Q4) a) Consider the following data set **[6]**

f_1	f_2	y
−1	−1	−1
0	1	+1
1	0	+1
1	1	+1

If perception along with is applied so that data set with the weight vector initialize to [0, 0]. How many times the weight vector will be updated during the training process.

b) Explain ReLU function in detail. **[4]**

OR

c) By using following single depth of input. **[10]**

3	1	2	2
9	4	6	1
8	5	2	4
3	1	2	6

i) Find 1 > maxpool with 2×2 Filter and stride 2.

ii) Average pool with 2×2 filter and stride 2.

Q5) a) Explain the working of convolutional Neural networks with a neat diagram. **[5]**

b) Explain CPU in detail. **[5]**

OR

c) Explain generative adversarial network C(GAN) **[5]**

d) Explain chatbot in detail. **[5]**

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