Total No. of Questions : 8]

SEAT No. :

P-458

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[6003]-565

T.E. (Semester - I)

Honors In Data Science

DATA SCIENCE AND VISUALIZATION

(2019 Pattern) (310501)

Time : 2½ Hours] *[Max. Marks :70*

Instructions to the candidates:

1) ***Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right indicate full marks.***
4) ***Assume suitable data, if necessary.***

Q1) a) Sate and explain how Naive bays Theorem is used to solve classification problems. **[6]**

b) What is the difference between regression and classification? Explain with example. **[6]**

c) Write a note on (Any 3) **[6]**

i) Partitioning Clustering

ii) Density-Based Clustering

iii) Distribution Model-Based Clustering.

iv) Hierarchical Clustering

OR

Q2) a) What is clustering? Explain K-means clustering algorithm. **[6]**

b) Explain how simple linear regression is used for house prize prediction. (Assume the suitable dataset). **[6]**

c) Briefly explain evaluation of association rules. **[6]**

Q3) a) Write a note on the following. **[9]**

i) Gini Index

ii) Information gain

iii) Entropy

b) What is a neuron? Explain the architecture of artificial neurons. **[8]**

OR

P.T.O.

Q4) a) What is a decision tree? What are the advantages and disadvantages of a decision tree? **[9]**

b) What is a feedforward neural network? Explain with suitable example. **[8]**

Q5) a) What are the challenges related to data visualization. **[6]**

b) Explain dashboard design principles. **[6]**

c) What are the advance data visualization techniques? Explain any 2. **[6]**

OR

Q6) a) Write a note on 'Display media for dashboard'. **[9]**

b) Explain where and how bar-graphs, Scatterplots and histograms can be used to visualize the data. **[9]**

Q7) a) Explain entity-relationship (ER) Data modelling. **[6]**

b) List the disadvantages of multi-dimensional data model? **[6]**

c) Discuss the challenges of clustering High-dimensional data. **[5]**

OR

Q8) a) What are the key steps in data modelling process? Enlist and explain. **[6]**

b) Explain multidimensional data model with one example. **[6]**

c) What do you mean by Principal Component Analysis? Explain with example. **[5]**

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