

*Sainath*



**Avinashilingam Institute for Home Science and Higher Education for Women**  
(Deemed to be University Estd, u/s 3 of UGC Act 1956, Category 'A' by MHRD)  
Re-accredited with 'A++' Grade by NAAC, CGPA 3.65/4, Category 1 by UGC,  
Coimbatore-641 043, Tamil Nadu, India

**Continuous Internal Assessment Test II – October 2024**  
**SEMESTER-V**

**Class: III B.Sc**

**Major: Computer Science**

**Time: 2 hours**

**Max. Marks: 60**

**21BCSC21 Fundamentals of Data Science**

**Course Outcomes:**

At the end of the course, students will

- Students will be able to apply the basic Data science knowledge on the day problems they encounter.
- Students will realize that there are various phases that contribute to the completion of a Data Science project and can select among the various modelling techniques.
- Students will be able to apply Regression techniques for modelling a Data science project.
- Students will be able to apply the Clustering and Association rule mining for modelling a Data science project.
- Students can reproduce the knowledge gained and come with a sample case study which they come across in their daily life and implement, document and present the same using the R Tool.

**Part-A**

**6 × 1 = 6**

**Choose the correct answer**

1. The dimensions of the dataset can be found using \_\_\_\_\_ function in R. **CO1K1**  
a. Cor()                      b. dim()                      c. dimension()                      d. Corr()
2. Interpret under which Machine Learning pattern does Apriori algorithm occur **CO2K2**  
a. Un-Supervised                      b. supervised                      c. Deep learning                      d. Pattern based
3. If Linear regression model perfectly first i.e., train error is zero, then **CO3K3**  
a. Test error is always zero                      b. Test error is non zero  
c. Couldn't comment on Test error                      d. Test error is equal to Train error
4. Frequency of occurrence of an itemset is called as \_\_\_\_\_ **CO4K1**  
a. Support                      b. Confidence                      c. Support Count                      d. Rules
5. Which Data is used to build a mining model? **CO4K1**  
a. Training data                      b. Hidden data                      c. Test data                      d. Validation data
6. Data Scientists are interested in \_\_\_\_\_ approach of a data science project. **CO5K2**  
a. Structural                      b. Modelling                      c. Technique                      d. Pattern based

**Part- B**

**3 x 6 = 18**

**Answer ALL Questions**

**Each answer should not exceed 400 words or two pages**

7. a. Highlight on the application for supervised learning with a suitable example. **CO3K2**  
(or)  
b. Highlight on the application for unsupervised learning with a suitable example. **CO3K2**
8. a. Annotate on the significance of clustering and the two approaches to be used. **CO4K4**  
(or)  
b. Report on the 4 types of cluster analysis with accurate examples. **CO4K3**
9. a. Discuss on the usage of knit package function. **CO5K2**  
(or)  
b. Elucidate on advanced algorithms functioning in Association rules. **CO5K4**

**Part-C**

**3x12=36**

**Answer ALL questions**

**Each answer should not exceed 800 words or four pages**

10. a. Illustrate on choosing the Optimal Distance Metric for Clustering based on Key Considerations CO4K3  
(or)  
b. Illustrate on Hierarchical clustering with a neat sketch CO4K2
11. a. Implement and discuss on the grouping of similar data characteristics through the Kmeans learning. CO4\_K4  
(or)  
b. Articulate and execute the significance of Association rules. CO4K4
12. a. Discuss on the factors related to the preparation of final Documentation and Deployment to the stake holders. CO5K3  
(or)  
b. Elaborate on the following CO5K2  
(i) Demonstration of the models to end users.  
(ii) Demonstration of the final work to other data scientists.  
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**Staff in-Charge:** Dr.N.Valliammal, Mrs.S.Abinaya

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