

**(3 Hours)**

**[Total Marks 80]**

- i. Q. 1. is Compulsory.**
- ii. Attempt any three from the remaining.**
- iii. Assume suitable data.**

- 1(a)** Define “Business Intelligence” and “decision support system” with e.g.? **05**
- 1(b)** Define OUTLIERS? What are the different types that occur in a database? **05**
- 1(c)** Clearly explain data preprocessing phase in data mining? **05**
- 1(d)** Define data mining? Write five e.g. for the same? **05**
- Q2 (a)** Explain multidimensional and multilevel association rule with e.g.? **10**
- Q2 (b)** Explain DBSCAN algorithm using appropriate diagrams? **10**
- Q3 (a)** Explain APRIORI algorithm to identify the frequent set than extract strong association rule from these sets? **10**

MIN support = 30% min. confidence = 75%

TID	ITEMS
01	A,B,D,E,F
02	B,C,E
03	A,B,D,E
04	A,B,C,E
05	A,B,C,D,E,F
06	B,C,D
07	A,B,D,E

- Q3(b)** Briefly explain bagging and boosting of classifiers? **10**

**Q.P. Code: 24209**

- Q4(a)** Use Hierarchical clustering algorithm to cluster the following 8 points into 3 clusters **10**  
A1=(2,10), A2=(2,5), A3=(8,4), A4=(5,8),  
A5=(7, 5), A6=(6, 4), A7=(1, 2), A8=(4, 9).
- Q4(b)** Explain the designer of BI system for credit card fraud detection? **10**
- Q5(a)** Explain birch algorithm? **10**
- Q5(b)** Define Decision support system and how it is related with data mining? Explain in detail with suitable e.g.? **10**
- Q6(a)** Explain business intelligence issues? **10**
- Q6(b)** Short note on Data mining steps in KDD? Explain its architecture **10**