

**AHSANULLAH UNIVERSITY OF SCIENCE AND TECHNOLOGY
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

Course No: CSE4125

Course Title: Distributed Database Systems

Spring 2020 | Class Assessment | Marks 30 | Time: 50+10 Minutes | Set - B

Consider the **global relational schema**:

PATIENT (PNUM, NAME, DEPT, TREAT, DNUM)

Applications:

APP1 = Select PNUM, TREAT from PATIENT where DEPT = "SURGERY";

APP2 = Update PATIENT set TREAT = 'Normal' where PNUM = 100;

APP3 = Select NAME from PATIENT;

APP4 = Update PATIENT set NAME = "Z" where PNUM = 99;

Access Frequency:

	Site 1	Site 2	Site 3
APP1	25	10	13
APP2	37	13	19
APP3	17	11	23
APP4	7	13	29

Assume attributes as –

A1 = PNUM, A2 = TREAT, A3 = DEPT, A4 = NAME

Suppose, four applications **APP1**, **APP2**, **APP3** and **APP4** are applied on PATIENT relation. Using **Bond Energy Algorithm**, group the columns of the relation and after that split the columns vertically at the required position with the help of goal function. Show attribute usage and affinity matrix, clustered affinity matrix and all the necessary calculations for other steps. Use the provided access frequency table. **Take A2, A4 as the starting bonding state.**