AHSANULLAH UNIVERSITY OF SCIENCE AND TECHNOLOGY
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
Course No: CSE4125
Course Title: Distributed Database Systems
Spring 2019 | Quiz – 1 | Marks 20 | Time: 40 Minutes | Set - C

1.   UNIVERSITY_DDB

A university has three campuses at three different locations. At each campus, a mainframe computer controls the terminals and maintains the student database of that campus. Each computer with its local student database constitutes one site at one campus. These different computers are connected via a communication network on a ring topology. During normal operations the applications which are requested from the terminals of a campus need only to access the database of that campus. Moreover, one campus can also request an application from its own terminal to access the database located at another campus. Each campus uses the same distributed database management system named 'Oracle'.

a. Do you think the *UNIVERSITY_DDB* supports an appropriate distributed database system?   4
Show reason behind your answer.

b. In which situation the DDBMS for the given scenario will become heterogeneous? Which type   6
of remote access method will you prefer if it becomes a heterogeneous system? Describe the method briefly.

c. Define Relations, Relational Schema, and Relational Algebra with example. Write the name of   3+1
the computer network type that is used in the given scenario.

2.   If R and S are the input relations, and T is the output relation, for which relational algebraic   6
operations the following statements are true? Explain with example.
      i. $grade(R) = grade(T) - grade(S)$
      ii. $cardinality(R) > cardinality(T)$
      iii. $grade(R) - grade(T) = 0$