**Blue Waters Petascale Semester Curriculum v1.0**

**Unit 5: MPI**

**Lesson 3: Collective vs. Point-to-Point Communication**

**Sample Assessment**

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1. What is the main difference between point-to-point communication and collective communication in MPI?
2. Why use MPI collective communication routines, instead of having programmers implement a tree/butterfly structure of their own for their applications?
3. Which process(s) in the MPI communicator calls the MPI collective communication routines, especially when data exchange is required?
4. Describe a scenario where an MPI application can make use of both point-to-point communication as well as collective communication routines?