The Johnson Company has three service departments: Administration, Maintenance, and Security. They also have two production departments: Machining and Assembly. Total manufacturing overhead was either directly traced or allocated to all of the departments resulting in a total of $300,000 of overhead in the Maintenance dept., $240,000 in the Administration dept., $135,000 in the Security dept., $1,000,000 in the Machining dept. and $300,000 in the Assembly dept.

Johnson’s allocates service dept. cost using the step method. The Maintenance dept. overhead is allocated first using number of maintenance hours followed by the Administration dept. based on number of employees and the Security dept. is allocated last on the basis of square footage.

Administration Security Maintenance Machining Assembly

Square footage 4,000 1,000 2,000 12,000 8,000

Number of employees 3 2 4 6 8

Direct labor hours 0 0 0 12,000 16,000

Machine hours 0 0 500 2,400 800

Maintenance hours 700 300 0 2,800 1,200

1. Allocate service department costs to the production departments using the step method of service department allocation.
2. Develop departmental overhead rates for the production departments using machine hours in the machining department and labor hours in the assembly department.