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Assignment 9

Consider Peterson's algorithm for mutual exclusion between two concurrent processes i and j. The
program executed by process is shown below.
repeat
flag [i] = true;
turn = j;
while (P) do no-op;
Enter critical section, perform actions, then exit critical
section
flag [i] = false;
Perform other non-critical section actions.
until false;
For the program to guarantee mutual exclusion, the predicate P in the while loop should be. Explain.
(A) flag[j] = true and turn = i
(B) flag[j] = true and turn = j
(C) flag[i] = true and turn = j
(D) flag[i] = true and turn = I

Answer :

(B) flag[j] = true and turn = j
Peterson's algorithm provides guaranteed mutual exclusion by using the two following constructs – *flag[]* and *turn*. *flag[]* controls that the willingness of a process to be entered in critical section. While *turn* controls the process that is allowed to be entered in critical section. So by replacing P with the following,
flag [j] = true and turn = j
process i will not enter critical section if process j wants to enter critical section and it is process j's *turn* to enter critical section. The same concept can be extended for more than two processes.