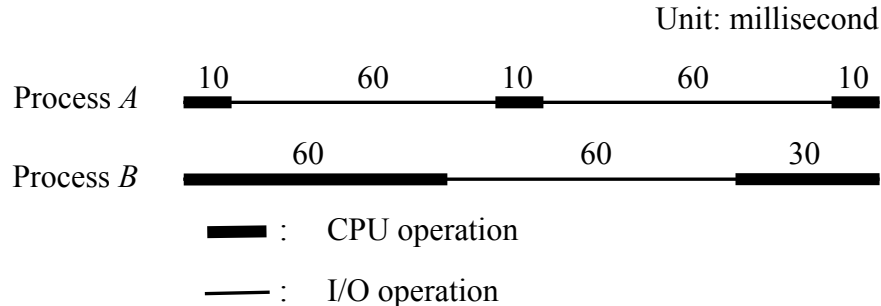


- Q29.** Two processes  $A$  and  $B$  with the same priority are executed in a round-robin method with a time slice of 30 milliseconds on a single CPU, but they use respectively different I/O devices. When they are executed as a standalone process, their processing times and sequences are shown in the figure below. How long (in milliseconds) does it take to complete both processes? Here, the two processes are alternately executed; that is, the first is  $A$ , the second  $B$ , and then  $A$  again. The multi-processing overhead of OS can be ignored, and both CPU and I/O operations can be executed concurrently.



- a) 150                      b) 160                      c) 170                      d) 180