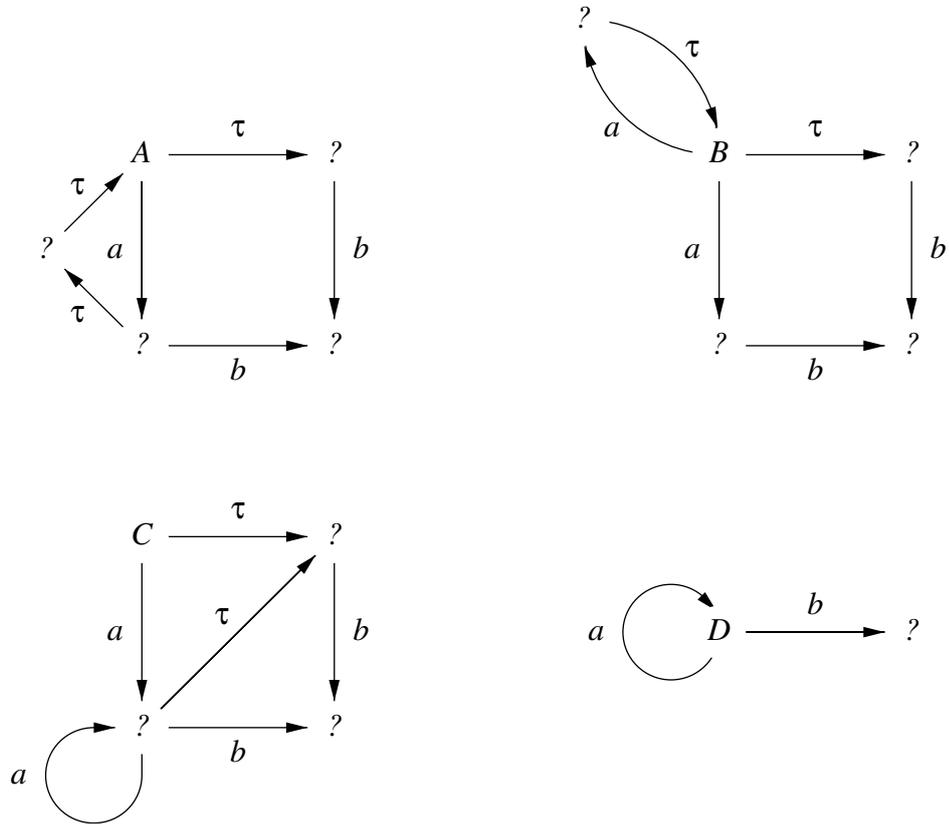


# 1993 Paper 9 Question 12

## Concurrency

Define the notion of *observation equivalence* ( $\approx$ ) for CCS agents. [5 marks]

Find definitions of CCS agents  $A$ ,  $B$ ,  $C$  and  $D$  with the following transition graphs.



[5 marks]

For each pair  $(P, Q)$  of these four agents  $A, B, C, D$ , determine whether or not  $P$  is observation equivalent to  $Q$ . (You may use the fact that  $\approx$  is an equivalence relation.) [10 marks]