Part G: Processors, part 1 (8 marks)

Address Valid

R/W̅

Data Valid
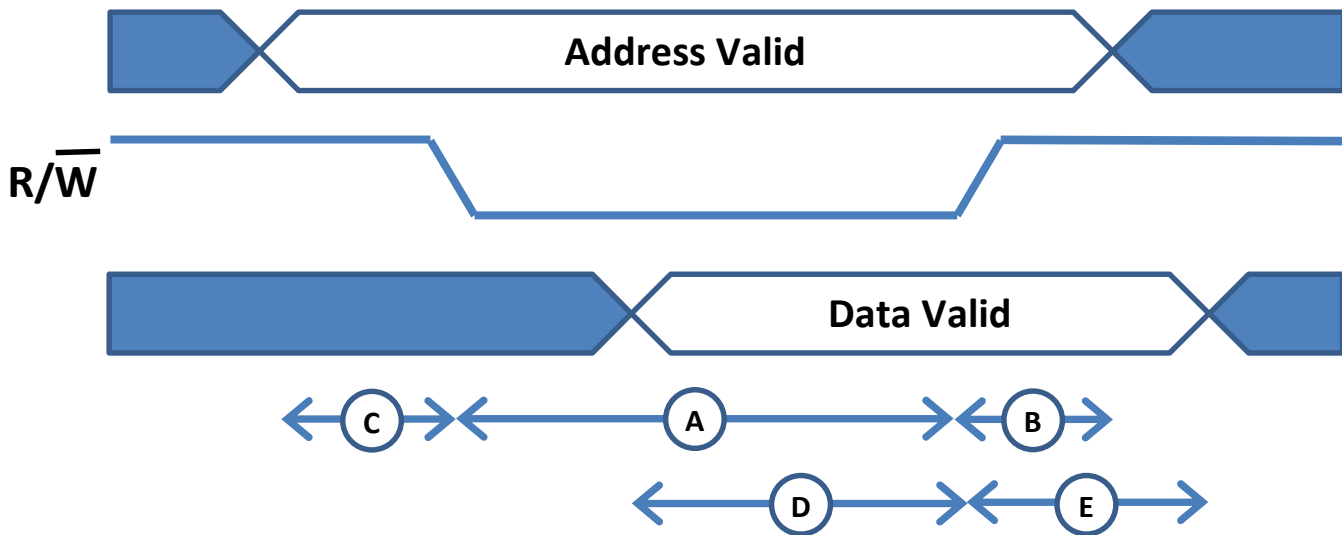
C   A   B

D   E

Consider the memory write diagram above. In the spaces below, write the name of each delay from the diagram and explain why this delay is needed. **(12 marks)**

A. Name: _T_{WP} **(Write Pulse Width)**_

Reason: _**Time needed for all data bits to be written into memory.**_

B. Name: _T_{HA} (Address Hold Time)_

Reason: _Time for address to be stable after enabling write signal._

C. Name: _T_{SA} (Address Setup Time)_

Reason: _Time for address to be stable before enabling write signal._

D. Name: _T_{SD} (Data Setup Time)_

Reason: _Time for data-in value to be set-up at destination._

E. Name: _T_{HD} (Data Hold Time)_

Reason: _Time data-in value should stay unchanged after write signal changes._