

1 (a) Describe the operation of each of the following logic gates:

NAND .....

.....

NOR .....

.....

XOR .....

.....

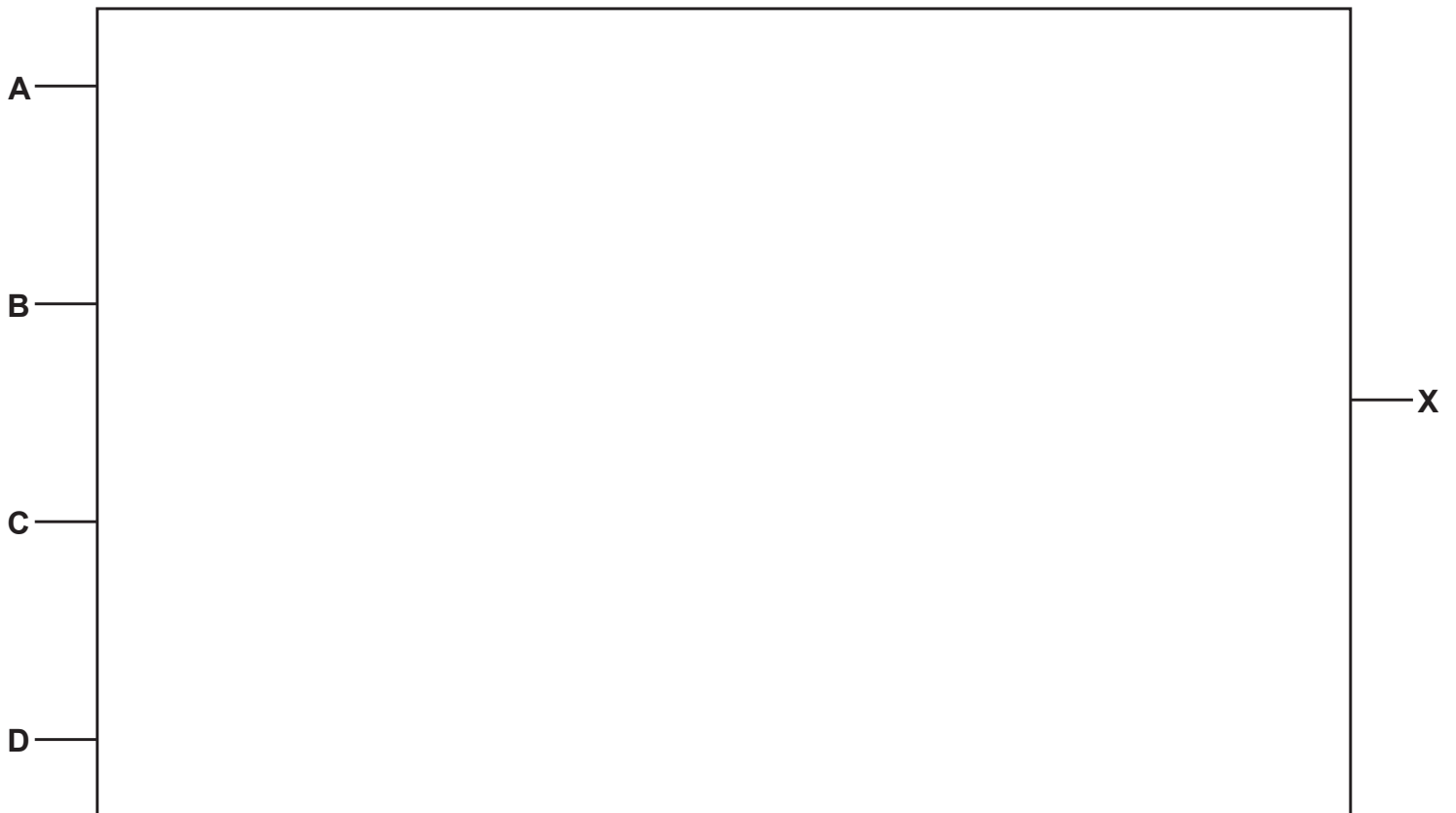
OR .....

.....

[4]

(b) Draw a logic circuit for this logic expression:

$$X = \text{NOT} ((A \text{ AND } B) \text{ OR } (C \text{ AND } D))$$



[2]