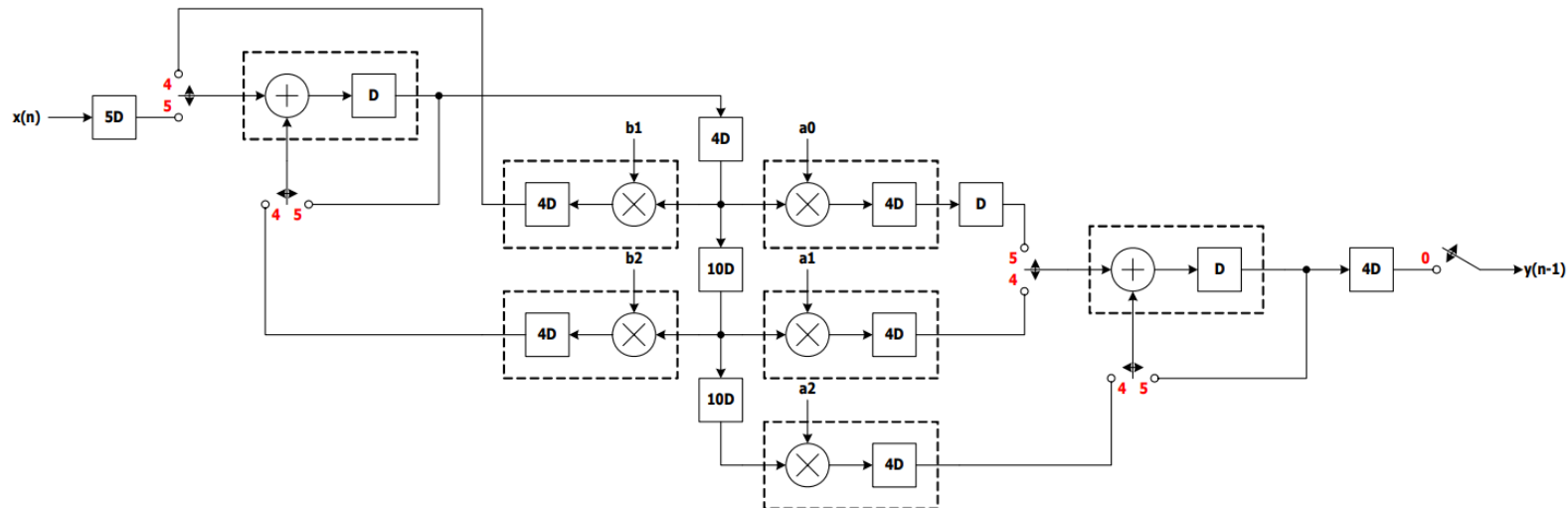# DSP in VLSI Design
Homework (VIII)

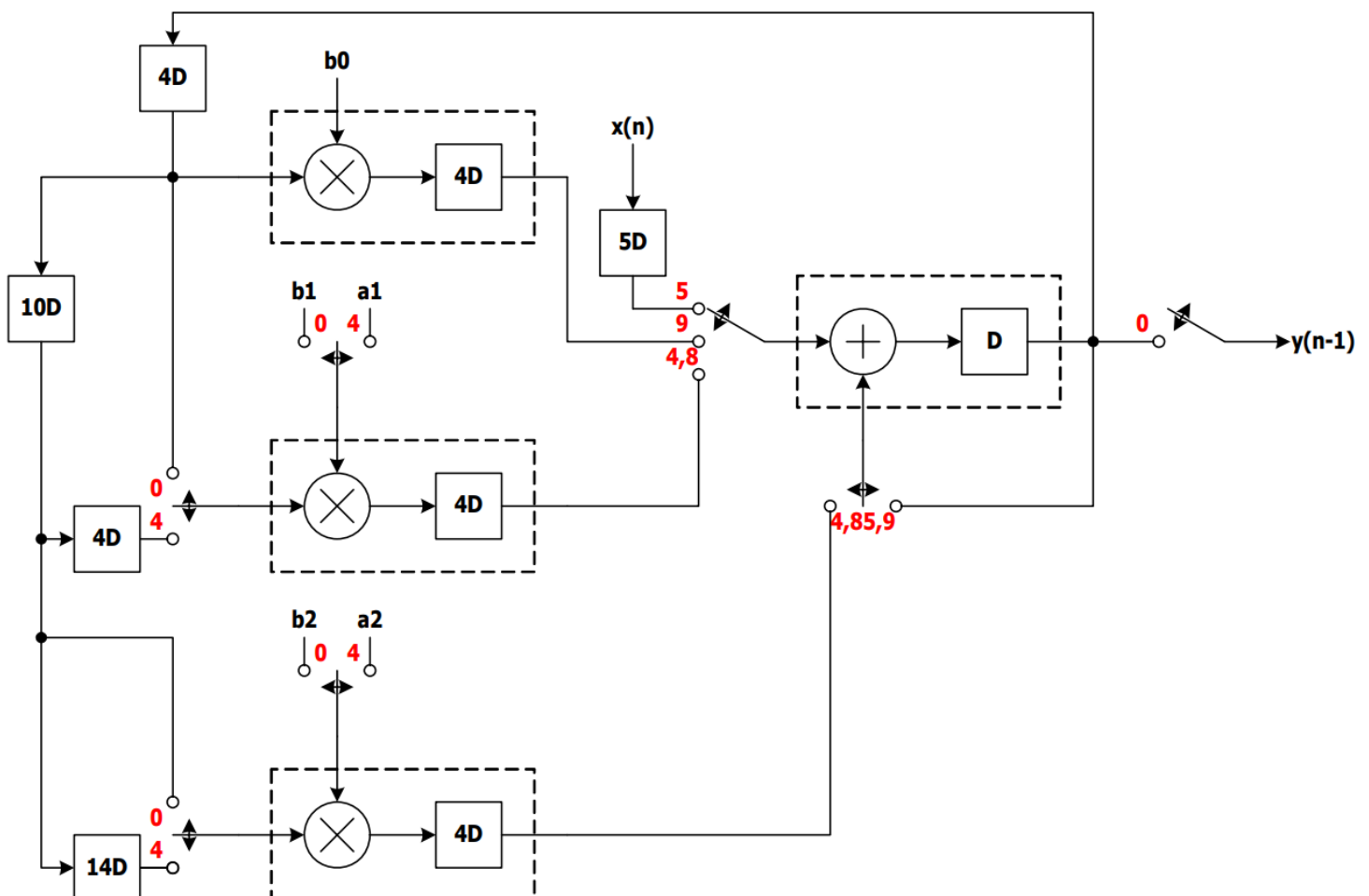## Scheduling and Resource Allocation
Reference Answer

1. This problem addresses the relationship between scheduling and folding. Scheduling can be used to derive the execution sequence (folding set) of an algorithm. Refer to the two scheduling shown in the slide 13, please derive the associated two folded architectures.
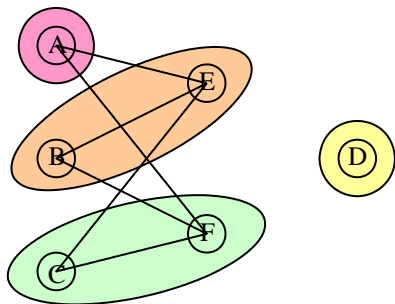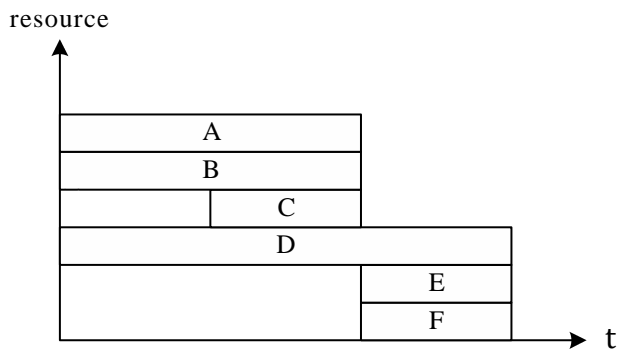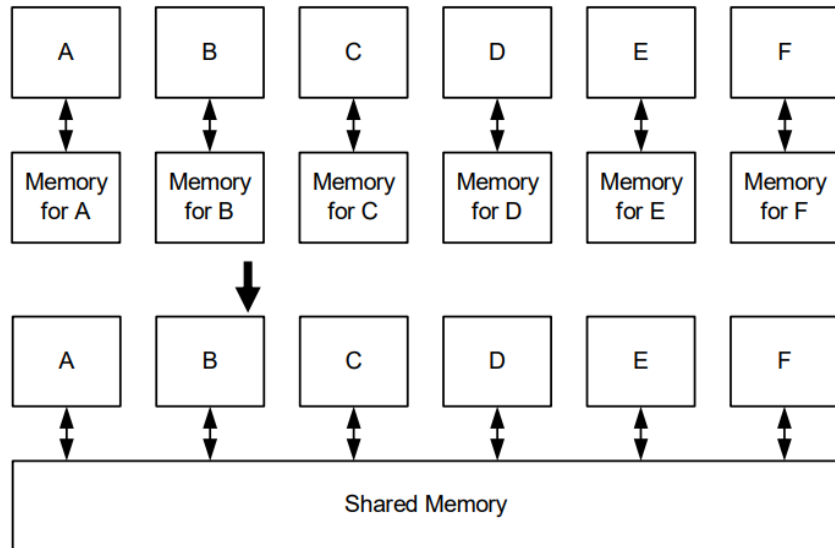
(1)

(2)

2. Consider a share-memory architecture. There are six modules, A, B, C, D, E, and F, in the system. And they use the same memory. Assume that this system can be used to handle three time-excluded tasks: the first task needs A, B, and D simultaneously; the second task needs A, B, C, and D simultaneously; the third task needs D, E, and F simultaneously. Note that when executing, each module require an independent memory bank, and we assume the required memory size for each module is the same. Please apply clique partition method to derive how many banks do we need to implement such system.

| A | B | C | D | E | F |

| Memory for A | Memory for B | Memory for C | Memory for D | Memory for E | Memory for F |

| A | B | C | D | E | F |

Shared Memory

resource

| A |
| B |
| C |
| D |
| E |
| F |

t

A
E
B
F
C
D

4 banks are required.