

Q16: The following matrices illustrate the situation of a computer system.

| Allocation | | | |
|------------|---|---|---|
| | A | B | C |
| T0 | 0 | 1 | 0 |
| T1 | 2 | 0 | 0 |
| T2 | 3 | 0 | 2 |
| T3 | 2 | 1 | 1 |
| T4 | 0 | 0 | 2 |

| Max | | |
|-----|---|---|
| A | B | C |
| 7 | 5 | 3 |
| 3 | 2 | 2 |
| 9 | 0 | 2 |
| 2 | 2 | 2 |
| 4 | 3 | 3 |

| Available | | |
|-----------|---|---|
| A | B | C |
| 3 | 3 | 2 |
| | | |
| | | |
| | | |
| | | |

Assume that the total number of each system resource is $\langle 10, 5, 7 \rangle$ where R_i means the amount of resource P_i

a) What are the contents of the matrix NEED?

| NEED | | |
|------|---|---|
| A | B | C |
| | | |
| | | |
| | | |
| | | |
| | | |

b) Is the system a safe state? If yes, write a safe sequence.

The following matrices illustrate the situation of a computer system

| Allocation | | | |
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| | A | B | C |
| T0 | 0 | 1 | 0 |
| T1 | 2 | 0 | 0 |
| T2 | 3 | 0 | 2 |
| T3 | 2 | 1 | 1 |
| T4 | 0 | 0 | 2 |

| Max | | |
|-----|---|---|
| A | B | C |
| 7 | 5 | 3 |
| 3 | 2 | 2 |
| 9 | 0 | 2 |
| 2 | 2 | 2 |
| 4 | 3 | 3 |

| Available | | |
|-----------|---|---|
| A | B | C |
| 3 | 3 | 2 |
| | | |
| | | |
| | | |
| | | |

a) What are the contents of the matrix NEED?

| NEED | | |
|------|---|---|
| A | B | C |
| | | |
| | | |
| | | |
| | | |
| | | |

b) Is the system a safe state? If yes, write a safe sequence.

| Work | | | |
|------|----|----|----|
| R0 | R1 | R2 | R3 |
| | | | |
| | | | |
| | | | |
| | | | |
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