Operating systems INT2206-6 Summer 2018-2019

Started on	Sunday, 7 April 2019, 8:03 PM
State	Finished
Completed on	Sunday, 7 April 2019, 8:33 PM
Time taken	30 mins 1 sec
Marks	18.00/20.00
Grade	**9.00** out of 10.00 (**90**%)

Question 1

Correct

Mark 1.00 out of 1.00

Flag question

Which is CORRECT about the bounded waiting condition of critical section?

Select one:

- It makes sure no process can never enter its critical section, or ensures the fairness among processes ✓
- It ensures the correct use of the shared resource
- It utilizes the shared resource effectively
- It supports the priority of processes

Question 2

Correct

Mark 1.00 out of 1.00

Flag question

Given the code of Readers-Writers problem:
Process writer P:

```
do {
```

```
wait(wrt);
```

```
write(data_set);
```

```
signal(wrt);
```

```
        }while (TRUE);
```

Process reader Q:

```
        do {
```

```
                wait(mutex);
```

```
                readcount++;
```

```
                if (readcount ==1) wait(wrt);
```

```
                signal(mutex);
```

```
                read(data_set);
```

```
                wait(mutex);
```

```
                readcount--;
```

```
                if (readcount ==0) signal(wrt);
```

```
                signal(mutex);
```

```
        } while (TRUE);
```

Which is the initialized value of the mutex variable in the above algorithm?

Select one:

- 0
- NULL
- -1

1 ✓

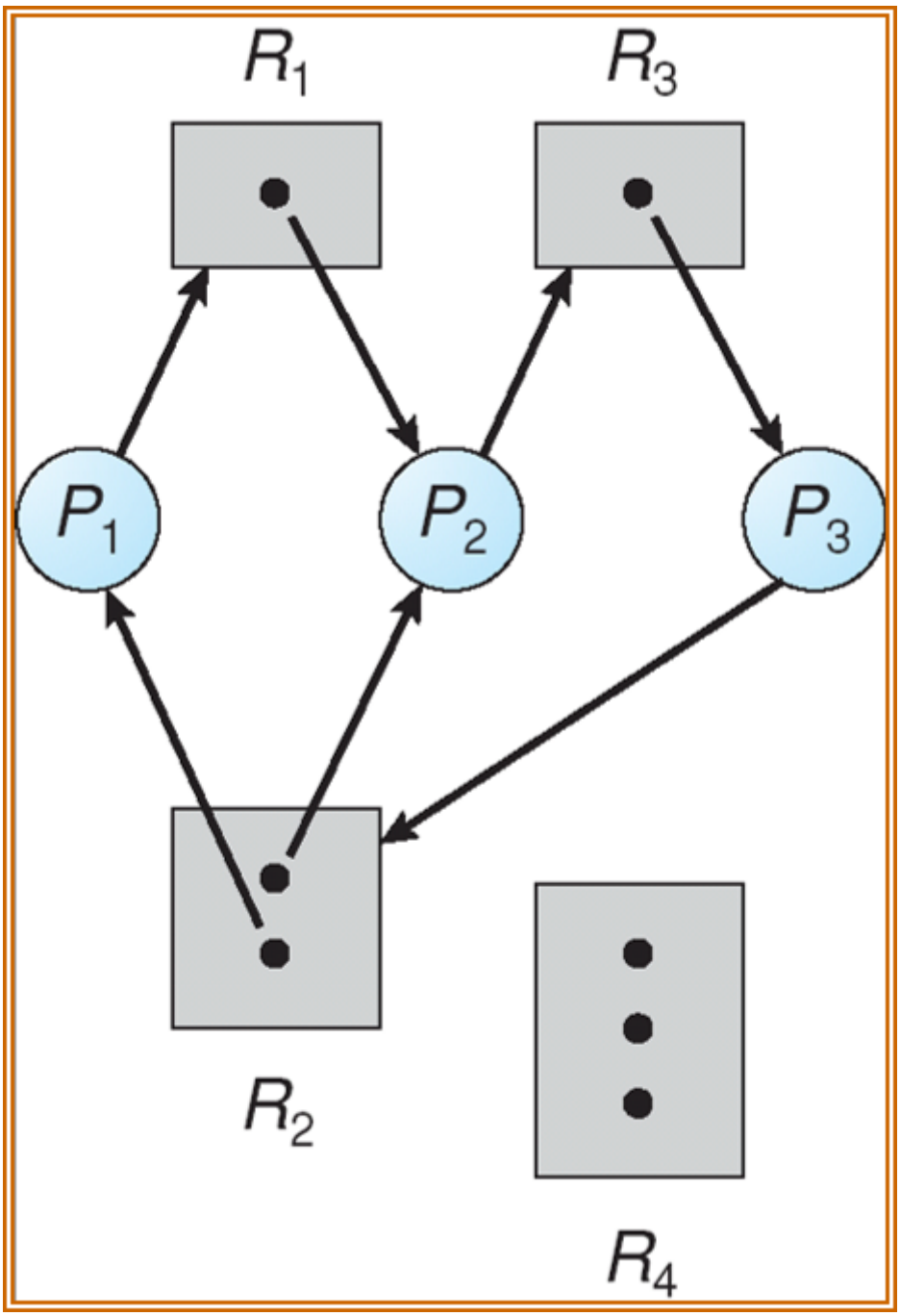
Question 3

Correct

Mark 1.00 out of 1.00

Flag question

Given the following resource allocation graph. What is the correct name of the edge from P2 to R3?



Select one:

- Assignment edge.
- Request edge. ✓
- Claim edge.

Question 4

Correct

Which is NOT an implementation of critical section?

Mark 1.00 out of 1.00

Flag question

Select one:

- Condition ✓
- Semaphore
- Monitor
- Peterson’s solution

Question 5

Correct

Mark 1.00 out of 1.00

Flag question

Given the following system information, and process P0 requests (0, 2, 0) more resources:

LABLE		ALLOCATION			MAX			AVBA		
	PROCESS	A	B	C	A	B	C	A	B	C
	P0	0	1	0	7	5	3	3	3	2
	P1	2	0	0	3	2	2			
	P2	3	0	1	9	0	2			
	P3	2	1	1	2	2	2			
	P4	0	0	2	4	3	3			

Which is the correct value of FINISH and WORK vectors during the running of Banker's algorithm which is called in the Resource-Request algorithm (to avoid deadlock)?

Select one:

- FINISH=(F, T, F, F, F), WORK=(3, 3, 2)
- FINISH=(F, F, T, F, F), WORK=(3, 0, 2)
- FINISH=(F, F, F, F, F), WORK=(3, 1, 2) ✓
- FINISH=(F, F, F, T, F), WORK=(2, 1, 2)

Question 6

Correct

Mark 1.00 out of 1.00

Flag question

Which is INCORRECT about safe state? The system is in safe state if there exists a sequence of processes that satisfies the following condition:

Select one:

- The processes finish in the order of the above sequence
- There may be several sequences if the system is in a safe state
- Process Pi can finish with its current resources and those held by processes Pj (j>i) ✓
- Process Pi can finish with its current resources and those held by processes Pj (j

Question 7

Correct

Mark 1.00 out of 1.00

Flag question

Given the following system information, and process P4 requests (1, 0, 0) more resources:

		ALLOCATION			MAX			AVBA		
LABLE										
	PROCESS	A	B	C	A	B	C	A	B	C
	P0	0	1	0	7	5	3	3	3	2
	P1	2	0	0	3	2	2			
	P2	3	0	1	9	0	2			
	P3	2	1	1	2	2	2			
	P4	0	0	2	4	3	3			

Which is the correct value of FINISH and WORK vectors during the running of Banker's algorithm which is called in the Resource-Request algorithm (to avoid deadlock)?

Select one:

- FINISH=(F, F, T, T, T), WORK=(10, 5, 5)
- FINISH=(F, T, F, T, T), WORK=(9, 4, 4)
- FINISH=(T, T, T, T, F), WORK=(9, 5, 4) ✓

FINISH=(F, T, F, F, T), WORK=(10, 5, 4)

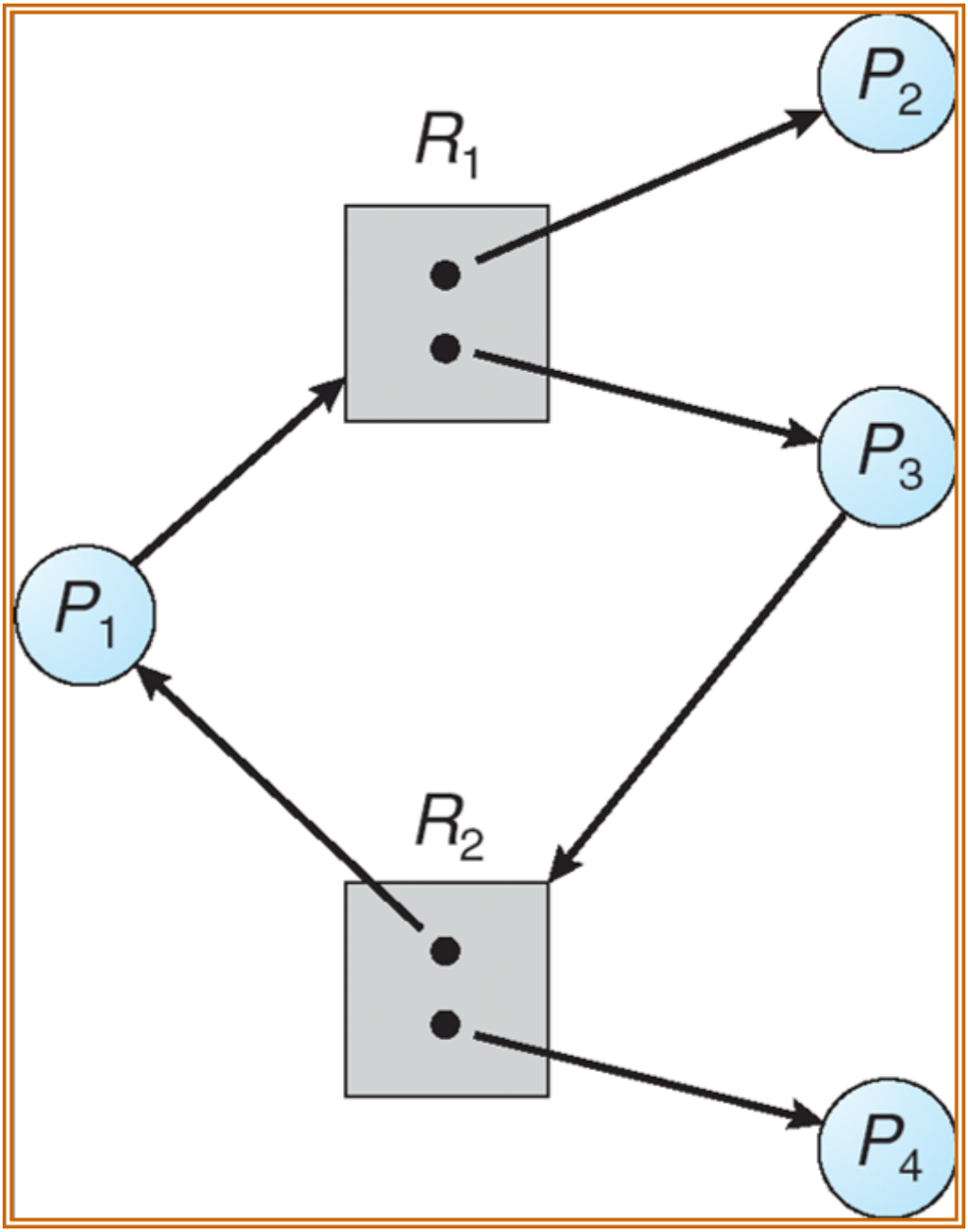
Question 8

Correct

Mark 1.00 out of 1.00

Flag question

Given the following resource allocation graph, provide the name of the edge from R2 to P4 (Assignment, Claim,or Request)?



Answer: Assignment

Question 9

Correct

Mark 1.00 out of 1.00

Which is not Interprocess Communication?

Select one:

A web browser views a webpage from a web server.

Flag question

- A process writes data to a file. ✓
- A process sends signal to another process
- A process connects to a Database Management System (such as Microsoft SQL Server)

Question 10

Correct

Mark 1.00 out of 1.00

Flag question

Which is incorrect about Semaphore?

Select one:

- We can manipulate the semaphore's integer directly. ✓
- wait (or P) operator is corresponding to ENTRY in the protocol of a critical section
- Semaphore includes an integer and two atomic operators.
- signal (or V) operator is corresponding to EXIT in the protocol of a critical section

Question 11

Correct

Mark 1.00 out of 1.00

Flag question

Given the following system information, and process P0 requests (0, 2, 0) more resources:

LABLE		ALLOCATION			MAX			AVBA		
	PROCESS	A	B	C	A	B	C	A	B	C
	P0	0	1	0	7	5	3	3	3	2
	P1	2	0	0	3	2	2			
	P2	3	0	1	9	0	2			
	P3	2	1	1	2	2	2			
	P4	0	0	2	4	3	3			

Which is the correct value of FINISH and WORK vectors during the running of Banker's algorithm which is called in the Resource-Request algorithm (to avoid deadlock)?

Select one:

- FINISH=(F, F, T, F, T), WORK=(7, 3, 3)
- FINISH=(F, T, F, T, F), WORK=(5, 2, 3)
- FINISH=(F, F, F, T, T), WORK=(5, 3, 2)
- FINISH=(F, T, F, T, F), WORK=(7, 2, 3) ✓

Question 12

Correct

Mark 1.00 out of 1.00

Flag question

Which is CORRECT about critical section?

Select one:

- A code snippet working with a global variable
- A code snippet working with a resource
- A code snippet working with a global resource
- A code snippet working with a shared resource ✓

Question 13

Correct

Mark 1.00 out of 1.00

Flag question

Which is the correct protocol to run a critical section named CS?

```
A)

do {

ENTRY;

Before_Code;

CS;

EXIT;

After_Code;

} while (TRUE);
```

```
B)
```

```
 do {
```

```
        Before_Code;
```

```
        ENTRY;
```

```
        CS;
```

```
        EXIT;
```

```
        After_Code;
```

```
 } while (TRUE);
```

```
C)
```

```
 do {
```

```
        ENTRY;
```

```
        Before_Code;
```

```
        CS;
```

```
        After_Code;
```

```
            EXIT;
```

```
        } while (TRUE);
```

```
       D)
```

```
        do {
```

```
            Before_Code;
```

```
            ENTRY;
```

```
            CS;
```

```
            After_Code;
```

```
            EXIT;
```

```
        } while (TRUE);
```

Select one:

- C
- B ✓
- D
- A

Question 14

Correct

Mark 1.00 out of 1.00

Which is CORRECT about banker algorithm?

Select one:

- It detects deadlock in the system

Flag question

- It finds out the safe state of the system ✓
- It finds out the safe sequence of the system when a process requests a resource
- It does not detect the unsafe state of the system

Question 15

Incorrect

Mark 0.00 out of 1.00

Flag question

Given the following information of the system.

Pro	Allocation			Request		Available		
	A	B	C	A	B	C	A	B	C
P0	0	1	0	0	0	0	0	0	0
P1	2	0	0	2	0	2			
P2	1	0	1	0	1	0			
P3	2	1	1	1	0	2			
P4	0	0	2	0	0	2			

The deadlock detection algorithm will indicate:

Select one:

- The system is in a deadlock and P1, P2, P3, P4 are in the deadlock
- The system is in a safe state since P0 P2 P1 P3 P4 is a safe sequence ✗
- The system is in a deadlock and P1, P3, P4 are in the deadlock
- The system is in a deadlock and P0, P1, P2, P3, P4 are in the deadlock

Question 16

Correct

Mark 1.00 out of 1.00

Flag question

Given the following system information, and process P0 requests (0, 2, 0) more resources:

	ALLOCATION			MAX			AVBA		
LABLE	PROCESS	A	B	C	A	B	C	A	B	C
	P0	0	1	0	7	5	3	3	3	2
	P1	2	0	0	3	2	2			
	P2	3	0	1	9	0	2			
	P3	2	1	1	2	2	2			
	P4	0	0	2	4	3	3			

Which is the correct value of FINISH and WORK vectors during the running of Banker's algorithm which is called in the Resource-Request algorithm (to avoid deadlock)?

Select one:

- FINISH=(F, F, F, F, F), WORK=(3, 1, 2) ✓
- FINISH=(F, F, F, F, F), WORK=(3, 0, 2)
- FINISH=(F, F, F, F, F), WORK=(3, 3, 2)
- FINISH=(F, F, F, F, F), WORK=(2, 1, 2)

Question 17

Correct

Mark 1.00 out of 1.00

Flag question

Which is incorrect about Semaphore?

Select one:

- wait (or P) operator is corresponding to ENTRY in the protocol of a critical section.
- Semaphore includes an integer and two atomic operators.
- wait() operator must be called before signal() in all cases ✓
- One important statement in signal (or V) operator is to increase the integer by 1.

Question 18

Incorrect

Mark 0.00 out of 1.00

Flag question

Given the code of a philosopher in the Dinning-philosophers problem with 5 philosophers:

```
        do {

                wait(chopstick[i]);

                wait(chopstick[(i+1)%5];

                Eat(i);

                signal(chopstick[i]);

                signal(chopstick[(i+1)%5];

                Think(i);

        } while (TRUE);
```

What value chopstick[i] is initialized?

Select one:

- 2
- 0
- 1 ✗
- 5

Question 19

Correct

Mark 1.00 out of 1.00

Flag question

Given the following system information:

	ALLOCATION			REQUEST			AVBALABLE		
PROCESS	A	B	C	A	B	C	A	B	C

```
                P0      0       1       0               0       0       0
0       0       0
```

```
                P1      2       0       0               2       0       2
```

```
                P2      3       0       3               0       0       0
```

```
                P3      2       1       1               1       0       0
```

```
                P4      0       0       2               0       0       2
```

Which is correct value of FINISH and WORK vectors during the running of the deadlock detection algorithm?

Select one:

- FINISH=(F, T, F, T, F), WORK=(2, 0, 0)
- FINISH=(T, F, T, F, F), WORK=(3, 1, 3) ✓
- FINISH=(F, F, T, F, T), WORK=(3, 0, 1)
- FINISH=(F, F, T, F, T), WORK=(2, 1, 0)

Question 20

Correct

Mark 1.00 out of 1.00

Flag question

Given the code of Readers-Writers problem:
Process writer P:

```
        do {
```

```
                wait(wrt);
```

```
                write(data_set);
```

```
                signal(wrt);
```

```
        }while (TRUE);
```

Process reader Q:

```
        do {

                wait(mutex);

                readcount++;

                if (readcount ==1) wait(wrt);

                signal(mutex);

                read(data_set);

                wait(mutex);

                readcount--;

                if (readcount ==0) signal(wrt);

                signal(mutex);

        } while (TRUE);
```

Which is the initialized value of the wrt variable in the above algorithm?

Select one:

- -1
- NULL
- 0
- 1 ✓

Finish review

QUIZ NAVIGATION

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