Operating systems INT2206-6 Summer 2018-2019

Started on	Sunday, 7 April 2019, 8:00 PM
State	Finished
Completed on	Sunday, 7 April 2019, 8:24 PM
Time taken	24 mins 38 secs
Marks	17.00/20.00
Grade	**8.50** out of 10.00 (**85**%)

Question 1

Correct

Mark 1.00 out of 1.00

Flag question

Given the following system information:

	ALLOCATION	MAX	AVAILABLE
PROCESS	TAPES	TAPES	TAPES
P0	5	10	3
P1	2	4	
P2	2	9	

Which is the correct value of FINISH and WORK vectors during the running of Banker's algorithm?

Select one:

- FINISH=(T, F, F) WORK =(3)
- FINISH=(F, F, T) WORK =(3)
- FINISH=(F, F, F) WORK =(4)

FINISH=(F, F, F) WORK =(3) ✓

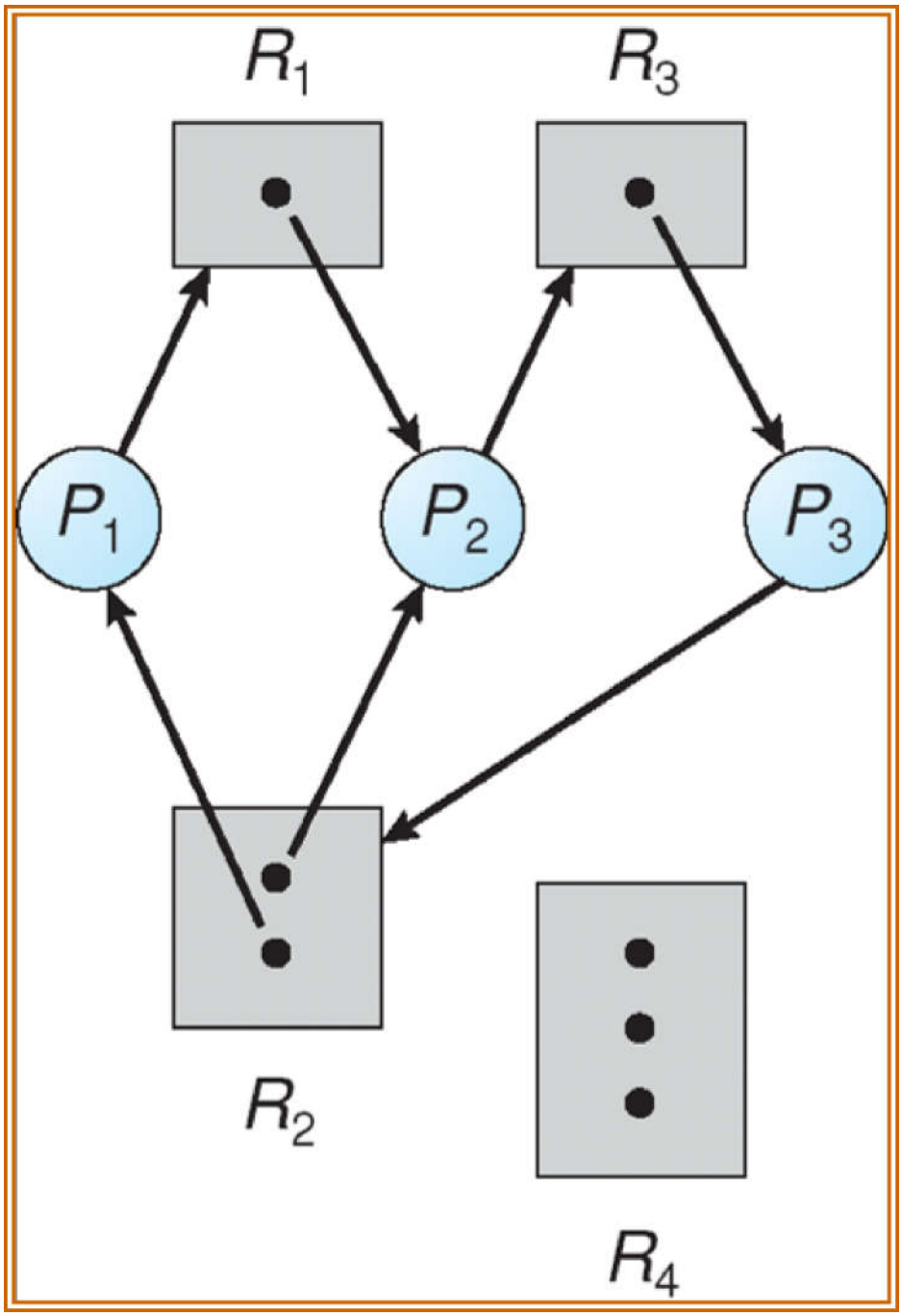
Question 2

Correct

Mark 1.00 out of 1.00

Flag question

Given the following resource allocation graph, which is correct?



Select one:

- There is no cycle in the graph, there is no deadlock.
- There is no deadlock.
- There are cycles in the graph, thus there is a deadlock. ✓
- There is a multiple instance resource type in the graph, thus there is no deadlock in the system.

Question 3

Incorrect

Mark 0.00 out of 1.00

Flag question

Which is a CORRECT method for recovering from a deadlock?

Select one:

- Reboot the system
- Provide more resources for the system
- Abort one of the processes in the deadlock ✗
- Abort all processes in the deadlock

Question 4

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 5

Correct

Mark 1.00 out of 1.00

Flag question

Which is CORRECT about the goal of the progress condition of critical section?

Select one:

- It ensures the correct use of the shared resource
- It utilizes the shared resource effectively ✓
- It supports the priority of processes
- It makes the algorithm complicated to implement

Question 6

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 purpose of wrt variable?

Select one:

- To safely write the readcount variable
- To safely write the data_set ✓
- To safely read the data_set

To safely access the mutex variable

Question 7

Correct

Mark 1.00 out of 1.00

Flag question

Which is INCORRECT about Inter-process Communication (IPC)?

Select one:

- IPC can only be used among processes in the same system ✓
- Examples of IPC mechanism in Linux are message queue, semaphore, shared memory, ...
- In uni-programming operating system there may be NO need of local IPC
- The IPC mechanism in different operating systems may be different

Question 8

Correct

Mark 1.00 out of 1.00

Flag question

Given the following system information, and process P1 requests (1, 0, 2) 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	2	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=(T, T, F, T, F), WORK=(10, 5, 5)

- FINISH=(F, T, F, T, T), WORK=(10, 5, 3)
- FINISH=(T, T, T, T, F), WORK=(10, 5, 5) ✓
- FINISH=(F, T, T, T, F), WORK=(10, 5, 5)

Question 9

Correct

Mark 1.00 out of 1.00

Flag question

Which is not Interprocess Communication?

Select one:

- A process writes data to a file. ✓
- A process sends signal to another process
- A web browser views a webpage from a web server.
- 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

There are two processes below running concurrently:

```
Process A:

{

        ...

        Lock_file(F1);

        ...

        Open_file(F2);

        ...

        Unlock(F1);

}
```

```
        Process B:
```

```
        {
```

```
                ...
```

```
                Lock_file(F2);
```

```
                ...
```

```
                Open_file(F1);
```

```
                ...
```

```
                Unlock(F1);
```

```
        }
```

Suppose the Lock_file() system call will force the file to be used by only one process. In other words, later call to open_file() will cause the calling process to wait. Which of the following statements is correct?

Select one:

- Deadlock always occurs.
- When process A locks file F1 and process B locks F2 at the same time (before open_file() operations), there will be a deadlock. ✓
- Deadlock occurs when process A unlock(F1) after process B locks F2;
- Deadlock never occurs.

Question 11

Correct

Mark 1.00 out of 1.00

Flag question

Given the two bellow processes sharing three semaphores full, empty, mutex, and a buffer buff having initial N empty slots:

```
semaphore mutex=1, full=0, empty=N;

int buff[N];

Write_Process:

do {

        wait(empty);

        wait(mutex);

        Write(buff);

        signal(mutex);

        signal(full);

} while (TRUE);

Read_Process:

do {

        wait(full);

        wait(mutex);
```

```
            Read(buff);
```

```
            signal(mutex);
```

```
            signal(empty);
```

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

Which is incorrect about semaphore empty?

Select one:

- The minimum value of empty is 0.
- The minimum value of empty is -1. ✓
- It is a counting semaphore.
- The maximum value of empty is N.

Question 12

Correct

Mark 1.00 out of 1.00

Flag question

Given the following information of the system.

```
        Pro             Allocation                  Max                 Available
                        A       B       C                   A       B       C
                        A       B       C
        P0              0       0       1                   0       0       1
                        1       5       2
        P1              1       0       0                   1       7       5
        P2              1       3       5                   2       3       5
```

```
        P3              0       6       3                       0       6
5
```

```
        P4              0       0       1                       0       6
5
```

If P1 requests resource A B C (0 4 2), the resource request algorithm will produce:

Select one:

- The system is not in the safe state, the request is not granted
- P0 P2 P4 P3 P1 is a safe sequence, the request can be granted immediately
- P0 P1 P2 P3 P4 is a safe sequence, the request can be granted immediately
- P0 P2 P1 P3 P4 is a safe sequence, the request can be granted immediately ✓

Question 13

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:

- -1
- 1 ✓
- NULL
- 0

Question 14

Incorrect

Mark 0.00 out of 1.00

Flag question

Which is the substance of deadlock avoidance?

Select one:

- Recover the system if a deadlock exists
- Always check whether the system is in a deadlock state
- Avoid one of the four deadlock conditions to occur ✗
- Whenever the system allocates a resource, it checks whether the system will be in a deadlock state

Question 15

Correct

Mark 1.00 out of 1.00

Flag question

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

Select one:

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

Question 16

Incorrect

Mark 0.00 out of 1.00

Flag question

Which is INCORRECT about deadlock avoidance algorithms?

Select one:

- If each resource has only one instance, we can use banker algorithm ✗
- We can use Resource-Request algorithm to ensure the system never is in an unsafe state
- If each resource has only one instance, we can use Resource Allocation Graph (RAG) to ensure the system never is in an unsafe state
- The banker algorithm cannot be used in case each resource has only one instance

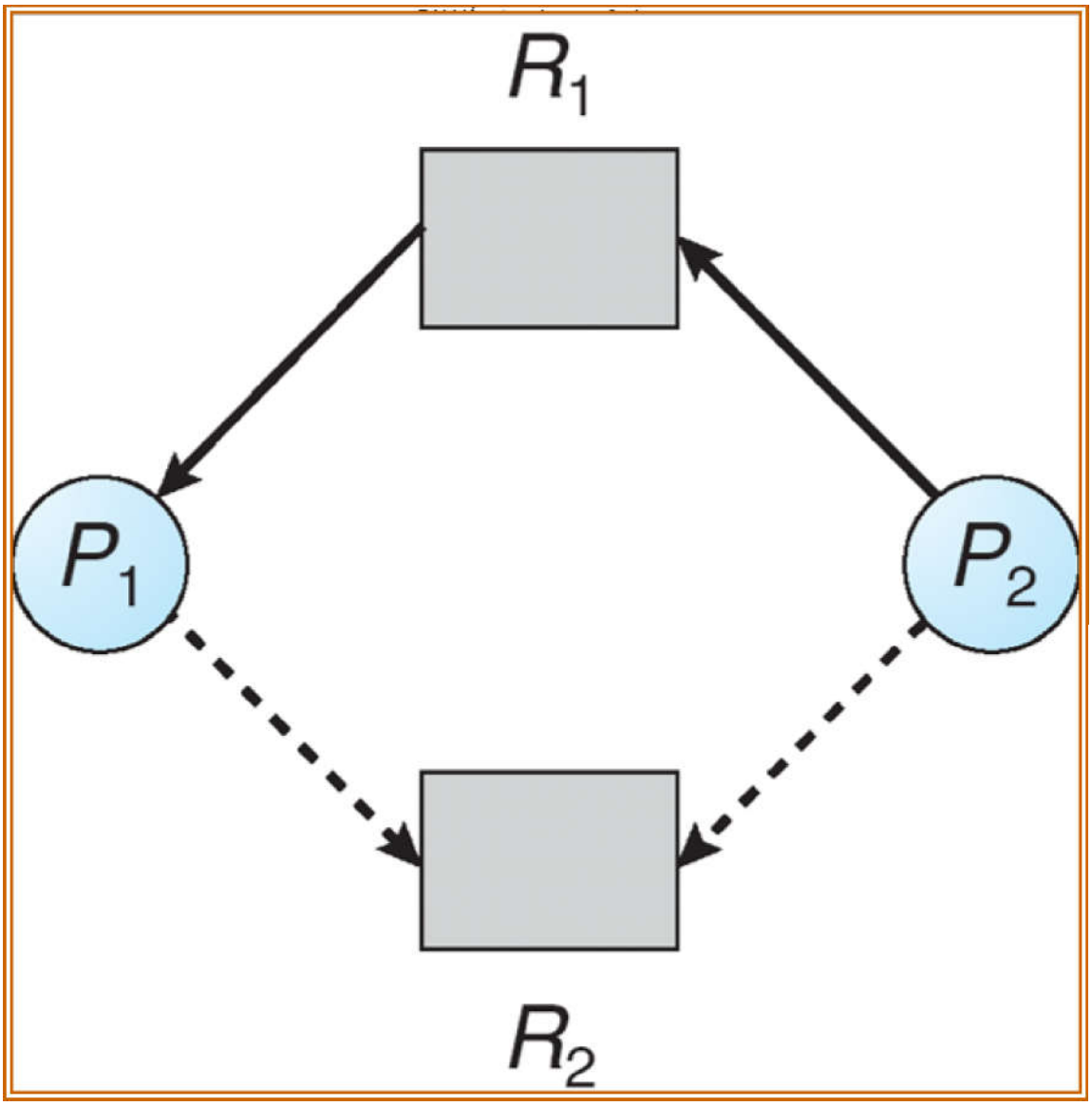
Question 17

Correct

Mark 1.00 out of 1.00

Flag question

Given the following resource allocation graph, provide the name of the edge from P2 to R2 (Assignment, Claim,or Request)?



Answer: Claim

Question 18

Correct

Mark 1.00 out of 1.00

Flag question

Given the code for bounded-buffer problem:
Write process P:

```
do {
```

```
wait(empty);
```

```
wait(mutex);
```

```
Write (item);
```

```
                signal(mutex);
```

```
                signal(full);
```

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

Read process Q:

```
        do {
```

```
                wait(full);
```

```
                wait(mutex);
```

```
                Read(item);
```

```
                signal(mutex);
```

```
                signal(empty);
```

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

Which is the correct initialized value of the semaphore variable full?

Select one:

- -1
- 0 ✓
- 1
- NULL

Question 19

Correct

Which is incorrect about Semaphore?

Select one:

Mark 1.00 out of 1.00

Flag question

- signal (or V) operator is corresponding to EXIT in the protocol of a critical section
- There is only one implementation of semaphore. ✓
- Semaphore includes an integer and two atomic operators.
- wait (or P) operator is corresponding to ENTRY in the protocol of a critical section

Question 20

Correct

Mark 1.00 out of 1.00

Flag question

If we ensure the system never enters a deadlock, which is the type of this deadlock handling method?

Select one:

- Deadlock ignorance
- Deadlock prevention ✓
- Deadlock recovery
- Deadlock detection

Finish review

QUIZ NAVIGATION

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

Show one page at a time

Finish review