Operating Systems_CS206

Question 1

Correct

Mark 1.00 out of 1.00

Flag question

Question text

Peterson's solution is classic hardware solution.

Select one:

Feedback

The correct answer is 'False'.

Question 2

Correct

Mark 1.00 out of 1.00

Flag question

Question text

Which of the following two operations are provided by the IPC facility?

Feedback

The correct answer is:
send and receive message

Question 3

Correct

Mark 1.00 out of 1.00

Flag question

Question text

Consider a set of n tasks with known burst times c1, c2, ... cn to be run on a uniprocessor machine.

SJF scheduling algorithms will result in the maximum throughput?

Select one:

Feedback

The correct answer is 'True'.

Question 4

Correct

Mark 1.00 out of 1.00

Flag question

Question text

Which of the following conditions must be satisfied to solve the critical section problem?

Feedback

The correct answer is:
Mutual Exclusion, Progress and Bounded Waiting

Question 5

Correct

Mark 4.00 out of 4.00

Flag question

Question text

Match the following statements to a 'program' or 'process'.

Loaded into the secondary storage device.	
A sequence of instruction execution.	
Time span is limited.	
A passive and static object that exists in a file.	

Feedback

The correct answer is:
Loaded into the secondary storage device. → Program,

A sequence of instruction execution. → Process,

Time span is limited. → Process,

A passive and static object that exists in a file. → Program

Question 6

Correct

Mark 1.00 out of 1.00

Flag question

Question text

Consider the following three processes with the arrival time and CPU burst time given in milliseconds:

Process	Arrival time	Burst Time
P1	0	7
P2	1	4
P3	2	8

Find the completion time of each process if preemptive SJF scheduling approach is followed.

Feedback

The correct answer is:
P1 =11, P2=5, P3 = 19

Question 7

Correct

Mark 1.00 out of 1.00

Flag question

Question text

TestAndSet instruction is executed _____

Feedback

The correct answer is:

atomically

Question 8

Correct

Mark 2.00 out of 2.00

Flag question

Question text

Consider the following set of processes P0, P1, P2, and P3. Their next CPU burst times are as follows.

Process	CPU Burst
P0	6
P1	8
P2	7
P3	3

What is the Average Turnaround Time using SJF?

Feedback

The correct answer is: 13

Question 9

Correct

Mark 1.00 out of 1.00

Flag question

Question text

Peterson's solution is restricted to _____ processes that alternate execution between their critical sections and remainder sections

Feedback

The correct answer is:
Two

Question 10

Correct

Mark 1.00 out of 1.00

Flag question

Question text

Which are two fundamental models of interprocess communication.

1. Shared Memory

2. Message Passing

3. Independent

4. Cooperating

Feedback

The correct answer is:
None

Question 11

Correct

Mark 1.00 out of 1.00

Flag question

Question text

Termination of the process terminates all threads within the process.

Select one:

Feedback

The correct answer is 'True'.

Question 12

Correct

Mark 1.00 out of 1.00

Flag question

Question text

Which of the following statements is not true for Multi Level Feedback Queue processor scheduling algorithm?

(a) Queues have different priorities

(b) Each queue may have different scheduling algorithm

(c) Processes are permanently assigned to a queue

Feedback

The correct answer is:
(c) only

Question 13

Correct

Mark 2.00 out of 2.00

Flag question

Question text

Consider the following set of processes P1, P2, and P3. Their arrival times, priority and next CPU burst times are as follows.

Process	Arrival Time.	CPU Burst	Priority
P1	0	10	3
P2	1	5	2
P3	2	2	1

What is the Average Waiting Time using a pre-emptive policy?

Feedback

The correct answer is: 3

Question 14

Correct

Mark 1.00 out of 1.00

Flag question

Question text

Which of the following scheduling algorithms may cause starvation ?

(a). First-come-first-served

(b). Round Robin

(c). Shortest job next

(d). Priority

Feedback

The correct answer is:
(c) and (d) only

Question 15

Correct

Mark 1.00 out of 1.00

Flag question

Question text

Process changes state from **running to ready** when

Feedback

The correct answer is:
process completes its time quantum

Question 16

Incorrect

Mark 0.00 out of 1.00

Flag question

Question text

Consider the following statements about user level threads and kernel level threads.

Which one of the following statement is True?

(a) Context switch time is longer for kernel level threads than for user level threads

(b) User level threads do not need any hardware support

(c) Blocking kernel level thread blocks entire process (many-to-one model).

Feedback

The correct answer is:
(a), (b) and (c) only

Question 17

Correct

Mark 1.00 out of 1.00

Flag question

Question text

Two processes, P1 and P2, need to access a critical section of code. Consider the following synchronization construct used by the processes. Here, x1 and x2 have shared variables, which are initialized to false. Which one of the following statements is TRUE about the above construct?

Process 1

```
while(true)
{
x1 = true;
while(x2 == true);
Critical section
x1 = false;
}
Remainder Section
```

Process 2

```
while(true)
   {
 x2 =true;
while(x1==true);
Critical section
x2=false;
 }
 Remainder Section
```

Feedback

The correct answer is:
It ensures mutual exclusion but does not prevent deadlocks

Question 18

Correct

Mark 1.00 out of 1.00

Flag question

Question text

Four jobs to be executed on a single processor system arrive at time 0 in the order A, B, C, D .

Their burst CPU time requirements are 4, 3, 8, 1 time units respectively.

The completion time of A under round robin scheduling with time slice of one time unit is

Feedback

The correct answer is: 11

Question 19

Correct

Mark 2.00 out of 2.00

Flag question

Question text

Consider the following set of processes P1, P2, and P3. Their CPU burst times are as follows.

Process	CPU Burst (in ms)
P1	30
P2	6
P3	8

What is the Average Waiting Time using a Round Robin Scheduling algorithm? Assume a time quantum of 5ms.

Feedback

The correct answer is: 15

Question 20

Correct

Mark 1.00 out of 1.00

Flag question

Question text

Message passing system allows processes to_____

Feedback

The correct answer is:
communicate with each other without sharing same address space

Question 21

Correct

Mark 1.00 out of 1.00

Flag question

Question text

Which of the following multithreading model has drawback that is creating a user level thread requires creating the corresponding kernel thread?

Feedback

The correct answer is:
One-to -One model

Question 22

Correct

Mark 1.00 out of 1.00

Flag question

Question text

If the quantum time of round robin algorithm is very large, then it is equivalent to:

Feedback

The correct answer is:
First-Come First Serve

Question 23

Correct

Mark 1.00 out of 1.00

Flag question

Question text

When several processes access the same data concurrently and the outcome of the execution depends on the particular order in which the access takes place is called

_____

Feedback

The correct answer is:
race condition

Question 24

Correct

Mark 1.00 out of 1.00

Flag question

Question text

Which of the following are the optimization criterion in the design of a CPU scheduling algorithm?

(1) Minimizing of CPU Utilization

(2) Maximizing CPU utilization

(3) Maximizing throughput

(4) Minimizing turnaround time

(5) Maximizing turnaround time

(6) Minimizing waiting time

Feedback

The correct answer is:
(2), (3), (4) and (6)

Question 25

Correct

Mark 2.00 out of 2.00

Flag question

Question text

Consider the following set of processes P0, P1, P2, and P3. Their arrival times and next CPU burst times are as follows.

Process	Arrival Time.	CPU Burst
P0	0	10
P1	1	6
P2	3	2
P3	5	4

What is the Average Turnaround Time using FCFS?

Feedback

The correct answer is: 14.25

Question 26

Correct

Mark 1.00 out of 1.00

Flag question

Question text

Which among the following are false?

(A) Starvation is the problem that occurs when low priority processes get jammed for an unspecified time as the high priority processes keep executing.

(B) Deadlock means when every process holds a resource and waits for another process to hold another resource.

(C) Convoy effect can be reduced by preemptive round robin scheduling algorithm

(D) Multi-programing means keeping multiple process in secondary storage

(E) Process/task waits and constantly checks for a condition to be satisfied before proceeding with its execution is known as busy waiting.

Feedback

The correct answer is:
(D) only

Question 27

Correct

Mark 4.00 out of 4.00

Flag question

Question text

There are two types of process terminations. Match the following child process terminations to the type of termination.

Task assigned to the process is no longer required.

Parent process is terminating.

The process has exceeded allocated resources.

Done by executing the exit() system call.

Feedback

The correct answer is:
Task assigned to the process is no longer required. → Forced,

Parent process is terminating. → Forced,

The process has exceeded allocated resources. → Forced,

Done by executing the exit() system call. → Normal

Question 28

Incorrect

Mark 0.00 out of 1.00

Flag question

Question text

In Non-preemptive SJF scheduling criteria, context switching will never take place , other than the termination of the executing process?

Select one:

Feedback

The correct answer is 'True'.

Question 29

Correct

Mark 1.00 out of 1.00

Flag question

Question text

Which are the correct definition of a valid process transition in an operating system?

(a) Dispatch:- ready->running

(b) Block:- running->ready

(c) Wake-up:- blocked->ready

(d)Timer run-out:- running->ready

Feedback

The correct answer is:
(a), (c) and (d) only

Question 30

Correct

Mark 4.00 out of 4.00

Flag question

Question text

Match the following

Upper bound on the number of times a process enters the critical section	
privileged instructions	
First Come First Serve	
Asynchronous cancellation may create inconsistent data	

Feedback

The correct answer is:
Upper bound on the number of times a process enters the critical section → Bounded Waiting,

privileged instructions → kernel mode,

First Come First Serve → Non-preemptive,

Asynchronous cancellation may create inconsistent data → True

Question 31

Correct

Mark 1.00 out of 1.00

Flag question

Question text

Non-preemptive version of round-robin scheduling is

Feedback

The correct answer is:
FCFS

Question 32

Correct

Mark 2.00 out of 2.00

Flag question

Question text

Consider the following set of processes P0, P1, P2, and P3. Their arrival times and next CPU burst times are as follows.

Process	Arrival Time.	CPU Burst
P0	0	3
P1	2	6
P2	4	4
P3	6	5
P4	8	2

What is the Average Turnaround Time for SRTF?

Feedback

The correct answer is: 7.2

Question 33

Correct

Mark 5.00 out of 5.00

Flag question

Question text

Match the descriptions to the correct criteria.

Total time spent by the process while waiting in suspended or ready state.

Time interval from entering the program to the last result appearing on the terminal.

Average fraction of time during which CPU executes either user programs or system modules.

Total time elapsed from the time the process is created to the time the process is completed.

Average amount of work completed per unit time.

Feedback

The correct answer is:
Total time spent by the process while waiting in suspended or ready state. → Waiting Time,

Time interval from entering the program to the last result appearing on the terminal. → Response Time (Time Sharing System),

Average fraction of time during which CPU executes either user programs or system modules. → CPU Utilization,

Total time elapsed from the time the process is created to the time the process is completed. → Turnaround Time,

Average amount of work completed per unit time. → Throughput

Question 34

Correct

Mark 1.00 out of 1.00

Flag question

Question text

Which module gives control of the CPU to the process selected by the short - term schedular ?

Feedback

The correct answer is:
Dispatcher

Question 35

Correct

Mark 2.00 out of 2.00

Flag question

Question text

Consider the following set of processes P0, P1, P2, and P3. Their arrival times, priority and next CPU burst times are as follows.

Process	Arrival Time.	CPU Burst	Priority
P0	0	10	5
P1	1	6	4
P2	3	2	2
P3	5	4	0

What is the Average Waiting Time using a non pre-emptive policy?

Feedback

The correct answer is: 7.75

Question 36

Correct

Mark 2.00 out of 2.00

Flag question

Question text

Consider the following set of processes P0, P1, P2, and P3. Their arrival times and next CPU burst times are as follows.

Process	Arrival Time.	CPU Burst
P0	0	10
P1	1	6
P2	2	2
P3	3	4

What is the Average Waiting Time for pre-emptive SJF?

Feedback

The correct answer is: 4.75

Question 37

Correct

Mark 1.00 out of 1.00

Flag question

Question text

The scheduler dynamically adjust the priority of a process to ensure that all processes would eventually execute in the CPU called

Feedback

The correct answer is: Aging

Question 38

Correct

Mark 1.00 out of 1.00

Flag question

Question text

Which of the following scheduling algorithms is non-preemptive?

(a) Round Robin

(b) FCFS

(c) Multi-level Scheduling

(d) Multi-level Queue Scheduling

Feedback

The correct answer is:
(b) only

Question 39

Correct

Mark 1.00 out of 1.00

Flag question

Question text

User Threads

Feedback

The correct answer is:
are supported above the kernel and are managed without the kernel support

Question 40

Correct

Mark 1.00 out of 1.00

Flag question

Question text

The register context and stacks of a thread are deallocated when the thread terminates.

Select one:

Feedback

The correct answer is 'True'.

Question 41

Correct

Mark 1.00 out of 1.00

Flag question

Question text

The maximum number of processes that can be in running state for a computer system with nn CPUs is

Feedback

The correct answer is:

nn

Question 42

Correct

Mark 4.00 out of 4.00

Flag question

Question text

Which component of the PCB stores the following information?

Priority of process and address of scheduling queues.

Actual CPU time used in execution.

Address of the next instruction to be executed.

List of open files and information about allocation of peripheral devices.

Feedback

The correct answer is:
Priority of process and address of scheduling queues. → Process Scheduling Information,

Actual CPU time used in execution. → Accounting Information,

Address of the next instruction to be executed. → Program Counter,

List of open files and information about allocation of peripheral devices. → I/O Status Information

Question 43

Correct

Mark 1.00 out of 1.00

Flag question

Question text

Medium term scheduler is responsible for suspending and resuming the processes, and reduces the degree of multiprogramming.

Select one:

Feedback

The correct answer is 'True'.

Question 44

Correct

Mark 1.00 out of 1.00

Flag question

Question text

Threads share registers, program counter and data files.

Select one:

Feedback

The correct answer is 'False'.

Question 45

Correct

Mark 1.00 out of 1.00

Flag question

Question text

Consider the 3 processes, P1, P2 and P3.

Processes- P1 P2 P3

Arrival time- 0 3 5

Burst Time- 5 7 4

The completion order of the 3 processes under the policies FCFS and RR (consider time quantum of 2 time unit) are

Feedback

The correct answer is:
FCFS: P1, P2, P3

RR: P1, P3, P2

Question 46

Correct

Mark 1.00 out of 1.00

Flag question

Question text

PCB pf each processes contains the information of process number, process state, list of files, program counter, etc.

Feedback

The correct answer is:
True

Question 47

Incorrect

Mark 0.00 out of 1.00

Flag question

Question text

Which of the following process scheduling algorithm may not lead to starvation

Feedback

The correct answer is:
FIFO and Round Robin

Question 48

Correct

Mark 1.00 out of 1.00

Flag question

Question text

The time required to create a new thread in an existing process is

Feedback

The correct answer is:
less than the time required to create a new process

Question 49

Correct

Mark 1.00 out of 1.00

Flag question

Question text

Which of the following is TRUE about SJF (Shortest Job First Scheduling)?

```
S1: It causes minimum average waiting time
S2: It can cause starvation
```

Feedback

The correct answer is:
Both S1 and S2

Question 50

Correct

Mark 1.00 out of 1.00

Flag question

Question text

Given a set of 4 processes (P), arrival time (AT) and burst time (CT) of each process. Time quantum is 2.

P P1 P2 P3 P4

AT:- 0 1 2 3

CT:- 5 4 2 2

How many context switches are needed if the operating system implements a round robin first scheduling algorithm? Assume the processor is idle initially.

Feedback

The correct answer is:
6

Question 51

Correct

Mark 1.00 out of 1.00

Flag question

Question text

Consider Peterson's algorithm for mutual exclusion between two concurrent processes i and j. The program executed by process is shown below. Initially, flag[i] =flag [j]=false.

while(true){

```
      flag [i] = true;
      turn = j;
      while ( P ) do no-op;
      Enter critical section,
      perform actions,
      exit critical section
      flag [ i ] = false;
      Perform other non-critical section actions.
   }
```

For the program to guarantee mutual exclusion, the *predicate P* in the while loop should be

Feedback

The correct answer is:
flag [j] = true and turn = j

Question 52

Correct

Mark 1.00 out of 1.00

Flag question

Question text

Assume every process requires 3 seconds of service time in a system with single processor.

If new processes are arriving at the rate of 20 processes per minute, then estimate the fraction of time CPU is busy in system?

Feedback

The correct answer is:
100%