What happens when 'LDA s' is run?	What happens when 'STA s' is run?
What happens when 'ADD s' is run?	What happens when 'SUB s' is run?
What happens when 'JMP s' is run?	What happens when 'JGE s' is run?
What happens when 'JNE s' is run?	What three steps occur during the fetch phase?

$$[s] = ACC$$

$$ACC = [s]$$

2

$$ACC -= [s]$$
 
$$ACC += [s]$$

$$4$$
 3

if 
$$ACC_{\dot{c}} = 0$$
 then  $PC = s$   $PC = s$ 

ory 2. Save result of read in CPU if ACC != 0 then PC = s

3. Increment PCI read

1

What control signals do all registers need?	What control signal does a multiplexer need?
What control signals does the memory need?	Which 3 signals control the ALU? $^{12}$
What is a process?	What is the address space?
What is a thread?	$What \ is \ multi-threading?$

A	sign a	al to	sele	ect ar	input

## An enable signal

10

9

add,  $sub \ \mathcal{E} \ byp$ 

Ren (read enable) and Wen (write enable)

12

11

All memory locations the process can use.

 $A\ program\ in\ execution,\ the\ thread\ +\ address\ space.$ 

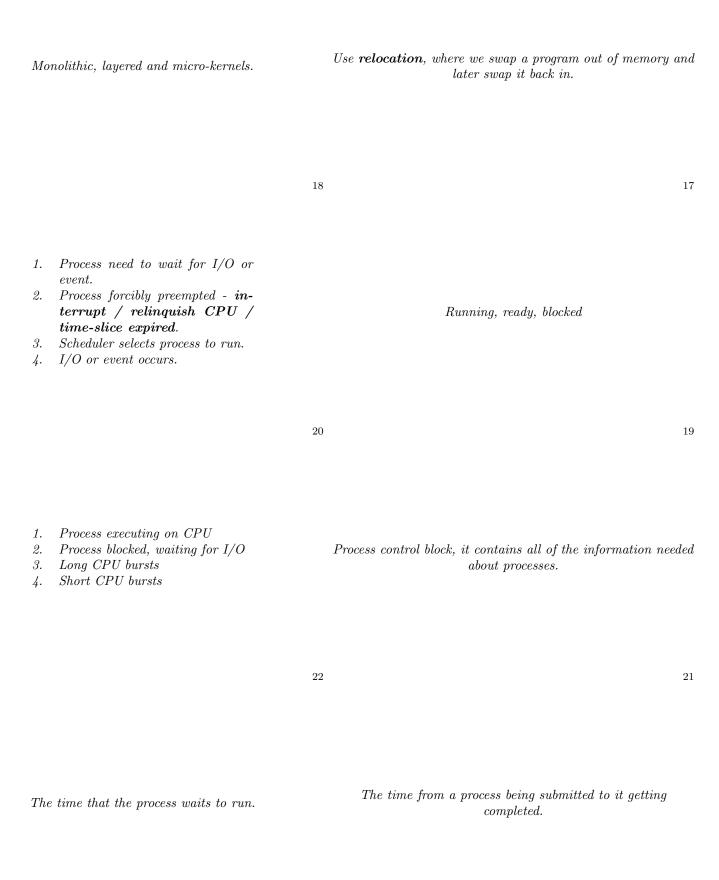
14

13

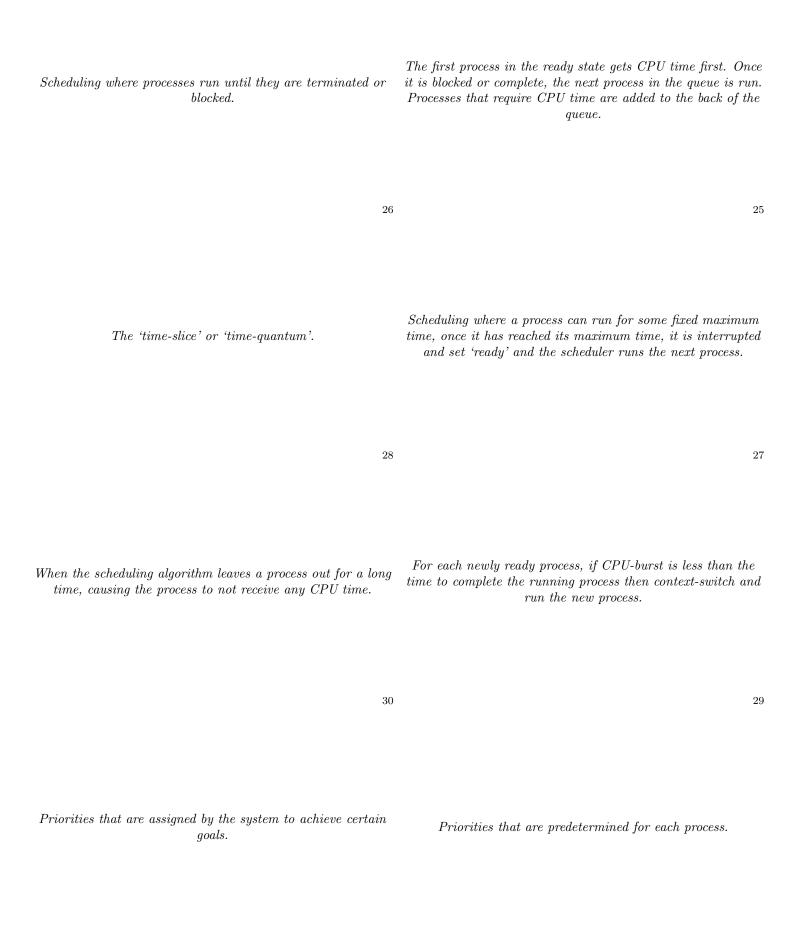
 ${\it This is where we have multiple threads within the same process}$ 

 $A\ sequence\ of\ instructions\ that\ are\ obeyed.$ 

How do we make programs think they have sole use of memory?	What are the three different approaches to engineering an OS?
What are the three process states?	In the diagram, what is happening at each stage?
What is a PCB table?	In scheduling, what do the following mean?  1. CPU burst  2. I/O burst  3. CPU bound  4. I/O bound
What is a processes turnaround time?	What is a processes waiting time?



Briefly explain the first come first served scheduling algorithm.	What is meant by pre-emptive scheduling?
25	26
What is meant by non-pre-emptive scheduling?	What is the fixed time amount called in non-pre-emptive processing?
Briefly explain the shortest remaining time first scheduling algorithm.	What is process starvation?
In scheduling, what are static priorities?	In scheduling, what are dynamic priorities?
01	92



What do the following terms mean?  1. Data inconsistency  2. Synchronisation  3. Critical section  4. Mutual exclusion	$What \ is \ deadlock?$
What is the base register of a program?	What is the limit register of a program?
What is the base register usage sequence?	What is the limit register usage sequence?
What is the virtual address?	What performs the virtual to physical address conversion?

Using appropriate policies and mechanisms to ensure the correct Where there are a set of waiting processes where each process operation of cooperating processes is waiting for something that can only be provided by another Section of code in which shared of the processes. data is used At most 1 process can be in its critical section at once 34 33 A register that is loaded with the physical address where the A register that is loaded with the length of the program. program begins in memory. 36 35 When the processor references memory, either fetch an When the base register usage sequence happens, the OS checks instruction or read or write a data word, the CPU hardware if the address offered is greater than the value in the limits automatically adds the base balue to the address generated by register, in which case a fault is generated and access aborted. the processor before sending the address out on the memory bus.38 37 An address that is generated by a program. It is converted to The memory management unit (MMU) the actual 'physical address' which is used in memory.

Disagreement about data values

1.

41	at are the two main reasons for virtual memory in a computer system?	What is the difference between a partition and a program?
What is a page table?		What is a page table?

- 1. To all a processor to address a much larger address space than is implemented by the physical memory
- 2. To support the OS in the management of processes

A partition is: division of the storage area of a memory. A program is: supplies a computer with a set of pre-written instructions.

42

A table used by the MMU to translate from a virtual to a physical address.