Question 1
register $29 is used for stack pointer. kern/arch/mips/include/kern/regdefs.h specifies the register definition.

Question 2
LAMEbus

Question 3
Max cpu number is 32.

Question 4
10000 as specified in clock.h.

Question 5
100

Question 6
By the kern/lib/kprintf.c, we just need to modify the value of the dbflags at line #43.

Question 7
By adding a new bit flag for DEBUG() at /kern/include/lib.h. And control it using the flag in kprintf.c. Eg. #define DB_CATMOUSE xxxx

Question 8
we can do that by adding DEBUG(DB_CATMOUSE,"Hello world\n") .

Question 9
In kern/lib/kprintf.c, we set dbflags = OB_CATMOUSE|DB_THREADS.

Question 10
As in the file kprintf.c, it contains its own lock. Therefore in our lock_aquire() protected critical section it will not print anything until we release the lock.

Question 11
A bitmap is a fixed size array of bits. It is intended for storage management.

Question 12.
Thread can have states: S_RUN,S_READY,S_ZOMBIE,S_SLEEP. all these are specified in /kern/include/thread.h

Question 13
exorcise(void) can be used to clean up zombies.

Question 14
wchan_sleep(void) in kern/thread/thread.c can do the job.

Question 15
We use it to keep track on which thread are we currently on.

Question 16
Basically it is a test of lock. In the uw-test, there are two fucntions add_thread and sub_thread which will be called in an order, and eventually should result our original value. If our lock implementation works then the test_value == START_value and we pass the test. otherwise we fail it.

Question 17
-692,-6580,-54419, -6273

Question 18
Since we have not implemented lock_create/lock_acquire()/lock_release, therefore it does not hold mutual exclusion therefore the critical section can be reach by two thread at same time.

Question 19
-5425, 9998, -2792, 17339, -6559.

Question 20
It does not affect the test_value that much.