10.1 Failure Safety
Test for every following schedule its membership in RC, ACA, and ST
a) $s_1 = r_3(y) r_1(x) w_1(x) r_2(x) c_1 w_3(y) w_2(x) c_3 c_2$
b) $s_2 = r_2(x) r_3(y) w_2(x) c_2 r_3(x) w_3(x) c_3 r_1(x) w_1(x) c_1$
c) $s_3 = r_1(x) w_1(x) r_3(x) w_3(x) c_3 r_2(x) w_2(x) c_2 a_1$

10.2 Schedules
One of the main goals of a DBMS is the protection of databases in multi user mode. Transaction management plays a key role in reaching that goal and is based on the so called ACID principle.

a) Explain the ACID principle in detail.

b) Why is the ACID principle necessary? What will happen to the data in a database when the ACID principle is not valid?

c) What is the meaning of the ACID principle for the schedule and the outcome of database transactions?

10.3 2PL
Show the output that a) a 2PL-Scheduler and b) a S2PL-Scheduler will produce for the following input schedules.

$s_1 = w_1(x) r_2(y) r_1(x) c_1 r_2(x) w_2(y)c_2$
$s_2 = r_1(x) r_2(x) w_3(x) w_4(x) w_1(x) c_1 w_2(x) c_2 c_3 c_4$