Exercise 1: Formally define a schedule. In addition, formally define the following concepts in suitable order: serial schedule, complete schedule, complete transaction, $SHUFFLE(T)$ and transaction.

Exercise 2: Consider the following set of transactions $T$:

$$T := \{T_1, T_2\}$$

$$T_1 := r_1(x)w_1(x)c_1$$

$$T_2 := r_2(x)r_2(y)w_2(y)c_2$$

Are the following operator sequences $s_i$ schedules per definition? If so, are the schedules serial or complete?

$$s_1 := r_1(x)r_2(x)r_2(y)w_1(x)w_2(y)$$

$$s_2 := r_1(x)$$

$$s_3 := r_2(x)r_1(x)w_2(y)r_2(y)w_1(x)$$

$$s_4 := r_2(x)r_2(y)r_1(x)w_1(x)c_1w_2(y)c_2$$

$$s_5 := r_2(x)r_2(y)r_1(x)w_1(x)r_2(y)w_2(y)c_1c_2$$

$$s_6 := r_2(x)r_2(y)w_2(y)c_2r_1(x)w_1(x)c_1$$

Exercise 3: Explain the criteria of correctness and formally define view and conflict serializability. In what context are the mentioned concepts.

Exercise 4: Consider the following schedules $s_1$ to $s_{10}$:

$$s_1 := r_1(x)w_1(x)r_2(x)r_3(z)w_3(x)r_1(z)$$

$$s_2 := w_2(x)w_2(y)r_1(x)r_1(y)w_1(y)r_2(y)$$

$$s_3 := r_1(x)w_1(x)r_2(y)w_2(y)r_1(y)r_2(x)$$

$$s_4 := w_1(y)w_2(y)r_2(y)r_1(x)w_3(z)$$

$$s_5 := r_1(x)w_1(x)r_2(y)r_3(z)w_2(x)w_3(x)$$

$$s_6 := w_2(x)w_1(x)w_1(y)w_2(y)w_1(y)w_3(z)$$

$$s_7 := w_2(x)w_2(y)r_1(x)r_1(y)w_1(y)w_3(z)$$

$$s_8 := w_1(x)r_2(x)w_2(z)r_3(z)w_3(y)w_1(y)$$

$$s_9 := w_2(x)r_2(y)r_1(x)r_1(y)w_1(y)r_2(y)$$

$$s_{10} := r_1(x)w_1(x)w_2(x)w_3(z)r_3(y)r_3(x)$$
Test the schedules for VSR and CSR (conflict equivalent to serial schedule + conflict graph)!

Exercise 5: Explain the completeness criteria presented in the lecture.

Exercise 3 2/2  
Good Luck!