Question 1

1) Yes

2) Possible candidate keys: ABJ, EBJ

3) R is in 1-NF.

   R is not in 2 NF because functional dependency $A \rightarrow D$ violates the constraint that non non-prime attribute should be functionally dependent on a part of the primary key.

4) One of the possible solutions:

   $$F_m = \{A \rightarrow E, B \rightarrow G, B \rightarrow I, E \rightarrow C, E \rightarrow D, E \rightarrow H, E \rightarrow A, H \rightarrow G, A \rightarrow I\}.$$
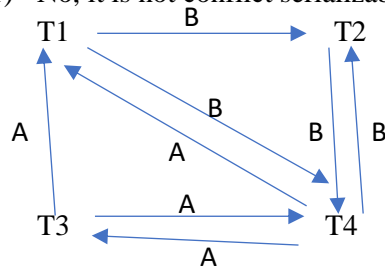
5) One of the possible solutions:
   AIE, BGI, ECADH, HG, BEJ.
   This decomposition is dependency preserving and lossless join.

Question 2

1) No, it is not conflict serializable. There are cycles in the precedence graph

2) One possible solution is as below:

Time	t_1	t_2	t_3	t_4	t_5	t_6	t_7	t_8	t_9	t_{10}	t_{11}	t_{12}
T_1	R(B)	R(A)	W(B)	W(A)								
T_2					R(B)	W(B)						
T_3							R(A)	W(A)				
T_4									R(A)	W(A)	R(B)	W(B)

3)

T1	T2
WriteLock(B)	
R(B)	
WriteLock(A)	
R(A)	
W(B)	
Unlock(B)	
	WriteLock(B)
	R(B)
W(A)	
Unlock(A)	
	W(B)
	Unlock(B)