Task 5

5a) Before we begin, the three stages are Commit, Rollback and Redo. Based on the diagram given, we can tell that T3 and T6 had been successfully committed, as it was committed before the checkpoint, where at the checkpoint the system would have ensured the data was written to the disk. As for Rollback, T1, T4, T7, T9 and T11 would require a rollback since they are still running at the point of failure. Lastly for Redo, T2, T5, T8 and T10 would require a redo even though it reached completion, it still passed the time of checkpoint.

5b)

Lock Table

TIME	TRANS	ACTION	A	B	C	D	E	F	G	H
0	T1	Read A	S(T1)							
1	T2	Read B		S(T2)						
2	T1	Read C			S(T1)					
3	T4	Read D				S(T4)				
4	T5	Read A	S(T5)							
5	T2	Read E					S(T2)			
6	T2	Update E					X(T2)			
7	T3	Read F						S(T3)		
8	T2	Read F						S(T2)		
9	T5	Update A	T5 wait T1							
10	T1	Commit	X(T5)							
11	T6	Read A	S(T6)							
12	T5	Rollback	X(T6)							
13	T6	Read C			S(T6)					
14	T6	Update C			T6 wait T1					
15	T7	Read G							S(T7)	
16	T8	Read H								S(T8)
17	T9	Read G							S(T9)	
18	T9	Update G							T9 wait T7	
19	T8	Read E					S(T8)			
20	T7	Commit							X(T9)	
21	T9	Read H								S(T9)
22	T3	Read G							S(T3)	
23	T10	Read A	S(T10)							
24	T9	Update H								T9 wait T8
25	T6	Commit	X(T6)							
26	T11	Read C			S(T11)					
27	T12	Read D				S(T12)				
28	T12	Read C			S(T12)					
29	T2	Update F						T2 wait T3		
30	T11	Update C			T11 wait T6					
31	T12	Read A	S(T12)							
32	T10	Update A	T10 wait T2							
33	T12	Update D				X(T12)				
34	T4	Read G							S(T4)	