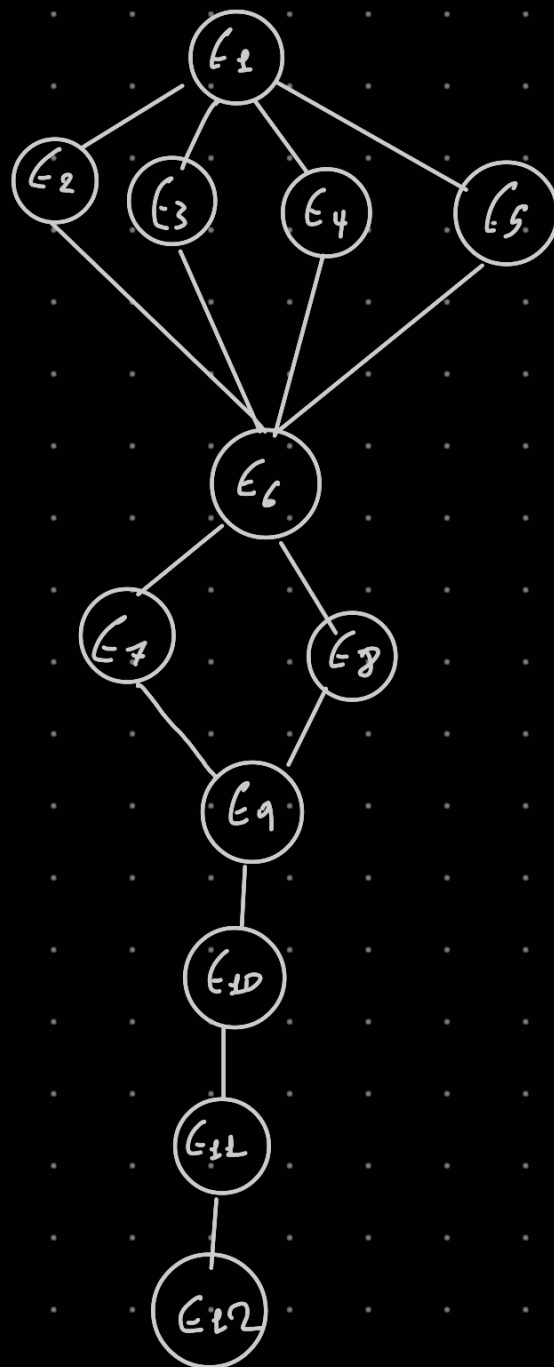


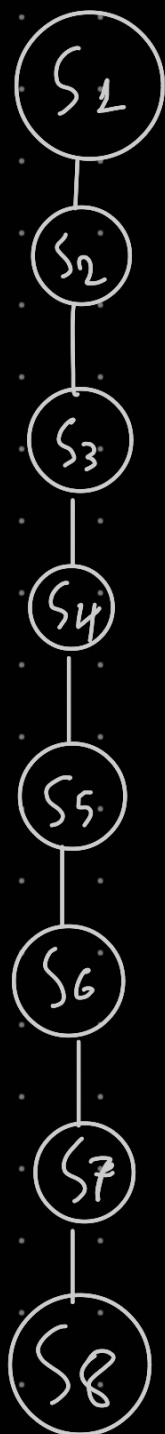
d)



- Q) E2, E3, E4 and E5 can be executed after E1 completes
E6 can be executed after E2, E3, E4 and E5 completes
E7 and E8 can be executed after E6 completes
E9 can be executed after E7 and E8 completes
E10 can be executed after E9 completes
E11 can be executed after E10 completes
E12 can be executed after E11 completes

8)

S1: E1
S2: E2,E3,E4,E5
S3: E6
S4: E7,E8
S5: E9,
S6: E10
S7: E11
S8: E12



S2 can be executed after S1 completes.
S3 can be executed after S2 completes.
S4 can be executed after S3 completes.
S5 can be executed after S4 completes.
S6 can be executed after S5 completes.
S7 can be executed after S6 completes.
S8 can be executed after S7 completes.

```
5) var S2,S3,S4,S5,S6,S7,S8: semaphores;  
   S2=0; S3=0; S4=0; S5=0; S6=0; S7=0; S8=0;  
   cobegin  
       begin E1; signal(S2); end;  
       begin S2; signal(S3); end;  
       begin S3; signal(S4); end;  
       begin S4; signal(S5); end;  
       begin S5; signal(S6); end;  
       begin S6; signal(S7); end;  
       begin S7; signal(S8); end;  
       begin S8; end;  
   coend
```