Quiz 5
Operating Systems and Networks
IIIT Hyderabad
Time: 30 minutes; Max. Marks: 24

Note: Give a brief and correct answer. **Mention your name and roll number on the answer sheet. Answer the question after writing the FIRST 10 WORDS OF THE QUESTION ALONG WITH THE QUESTON NUMBER in the answer sheet.**

1. Assume a system with four resource types C=<6,4,4,2>, and the maximum claim table shown below. The resource allocator is considering allocating resources according to the table shown below. Is this safe state ? Why and why not ? [12]

Maximum Claim table				
Process	R0	R1	R2	R3
P0	3	2	1	1
P1	1	2	0	2
P2	1	1	2	0
P3	3	2	1	0
P4	2	1	0	1
Current Allocation Table				
Process	R0	R1	R2	R3
P0	2	0	1	1
P1	1	1	0	0
P2	1	1	0	0
P3	1	0	1	0
P4	0	1	0	1

2. An old bridge on a busy highway is too narrow to permit two-way traffic, so one-way traffic is to be implemented on the bridge by alternatively permitting vehicles travelling in opposite direction to use the bridge. The following rules are formulated for use of bridge:
   (a) Any time the bridge is used by vehicle(s) travelling in one direction only.
   (b) If the vehicles are waiting to cross the bridge at both ends, only one vehicle from one end is allowed to cross the bridge before a vehicle from the other end starts crossing the bridge.
   (c) If no vehicles are waiting at one end, then any number of vehicles from the other end are permitted to cross the bridge.

   Develop a synchronization solution (Pseudocode) with semaphores. [12]