Question 1 (a): A client attempts to synchronize with a time server. It records the following round-trip times and timestamps returned by the server:

Round-trip (ms)	Time (hr:min:sec)
25	11:27:14.321
21	11:27:16.589
32	11:27:19.247

i) Which of these times should the client use to set its clock?

ii) Estimate the relative accuracy of the setting with respect to the server's clock.

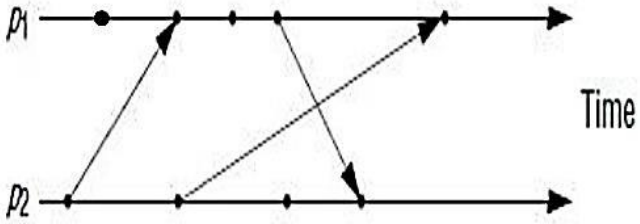
iii) To what time should the client set its clock, considering the calculated server times and potential averaging?

iv) If it is known that the minimum message transmission time is 6 milliseconds, recalculate the values in (b) and (c) above, considering if it changes the answer.

Examine how does the minimum message transmission time influence the accuracy of clock synchronization and the choice of the reference time? (CLO -1)

Question 2 (a):

Consider the space-time diagram of the distributed system below:-



a) Redraw the above diagram and assign lamport time-stamps to different events

b) Again redraw the above diagram and assign vector time-stamps to different events

Based on the causal relationships between these events using Lamport timestamps and vector timestamps**.** **Analyze** both time- stamping techniques and write pros and cons. (CLO -2)