(b) Two neighbouring nodes, A&B use a sliding window protocol with a 3-bit sequence number and go-back-N as the ARQ mechanism. Assuming A is transmitting and B is receiving. Show the window positions for the following succession of events.

(i) Before A sends any frame

(ii) After A transmits frames 0, 1 snd 2 and receives acknowledgements for 0 and 1.

(iii) After A sends frames 3, 4 and 5 and receives acknowledgement for 4.

$$1+1\frac{1}{2}+1\frac{1}{2}$$

(c) Draw the window positions in (b) above if selective repeat is used in stead of go-back-N. Also explain the difference in windows in two cases.

$$1+1\frac{1}{2}+1\frac{1}{2}+2$$

UNIT - III

3 (a) Derive the expression for throughput of an unslotted CSMA carrier. Enumerate all the assumptions.

8

(b) Write short notes on (i) HDCC and (ii) PPP. Also list one difference in the two protocals.

8

OR

3 (a) Show that in an n-station slotted ALOHA system, the probability of success of an arbitrary station is np $(1-p)^{n-1}$; where p = possibility that a station will transmit in each slot.

4

(b) Show that the maximum throughput of slotted ALOHA is twice that of the pure ALOHA.

8

(c) Explain working of PPP.

4

UNIT - IV

4 (a) Consider a 60-channel FDM system with a maximum base-band frequency of 252 KHz. Assume that a FDM multichannel rms frequency deviation of 546 KHZ is used. Calculate

(i) Bandwidth of the FDM-FM-FDMA carrier

(ii) FDM multichannel loading factor

(iii) O-dBM test-eone rms frequency derivation.

6

(b) Describe working of ADSL.

4