Wireless Channels

24. Find the minimum channel symbol rate needed by a digital communication system to resolve a multipath, with an additional path length of 30m compared to the direct path. 10%

25. If $B_D = 8MHz$ denotes the Doppler spread, B_{coh} represents the coherent bandwidth and T_{cs} is the channel symbol period, then in a frequency selective fast fading channel which of the following is correct? 10%

    (a) $T_c = 61n\,\text{sec}$ and $B_{\text{coh}} = 3\text{MHz}$.

    (b) $T_c = 61n\,\text{sec}$ and $B_{\text{coh}} = 100\text{MHz}$.

    (c) $T_c = 244n\,\text{sec}$ and $B_{\text{coh}} = 3\text{MHz}$.

    (d) $T_c = 244n\,\text{sec}$ and $B_{\text{coh}} = 100\text{MHz}$.

    (e) None of the above.

26. The minimum chip rate needed by a DS-BPSK spread spectrum system to resolve a multipath, with an additional path length of 30m compared to the direct path, is

    (a) 10 Mchips/second

    (b) 20 Mchips/second

    (c) 40 Mchips/second

    (d) 60 Mchips/second

    (e) none of the above.