

- 6 a. Explain the constructional features microstrip lines. Discuss the characteristic impedance and effective relative dielectric constant of a microstrip line. (09 Marks)
- b. Briefly explain the various losses in microstrip lines. (06 Marks)
- c. A lossless parallel strip line has a conducting strip width W . The dielectric substrate separating the two conducting strips has a relative dielectric substrate of 6 and thickness of the dielectric substrate is 4 mm. Calculate:
- The required width W of the conducting strip in order to have a characteristic impedance of 50Ω .
 - The strip line capacitance
 - The strip line inductance
 - The phase velocity of the wave in the parallel strip line (05 Marks)
- 7 a. Derive the simple form of RADAR range equation. (07 Marks)
- b. What are the applications of RADARs? (06 Marks)
- c. A RADAR transmitter operates at 10 GHz and transmits 250 KW of peak pulse power. If the antenna used by the transmitter and receiver has a gain of 4000 and the power received from a target at 50 km is 10^{-11} W, what is the RADAR cross section of the target? (07 Marks)
- 8 a. Explain the principle and working of MTI radar with a block diagram. What are its advantages? (10 Marks)
- b. With a neat block diagram of a delay line canceller explain the working principle. In the case of single delay line canceller derive the expression for the amplitude of the output. Hence draw the amplitude versus frequency plot. (10 Marks)
