Answer all questions

Question one [15 marks]:
  i. List the main component of telephone systems
  ii. Explain the basic idea for transmitting voice over the local loop
  iii. State the functions provided by the exchange to user telephone terminal

Question two [15 marks]:
  i. Differentiate between (فرق بين) crossbar switch and time division switch
  ii. Design a two stage 10x10 space division switch, having three crossbar switches in the first stage, and then calculate the number of cross-points

Question three [10 marks]:
  i. What is the function of trunk circuits?
  ii. Calculate the bit rate of E1 multiplexed line

Question four [15 marks]:
  i. State two type of signaling methods
  ii. Using numbering system structure show the components of the number 00249185332044
  iii. Calculate the minimum time required to send a telephone number 332044 using loop disconnect signaling

Question five [15 marks]:
  i. How full duplex transmission is achieved in dial up modems
  ii. Explain one of the modulation technique used in DSL technology
  iii. Calculate the minimum time required to transmit a 1Mbyte file using ADSL line (800 kbit/sec uplink, 2 Mbit/sec downlink)