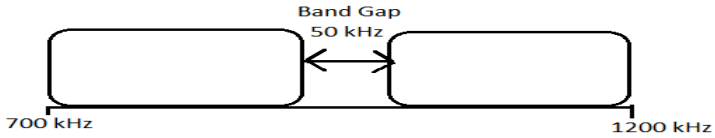
NAME: ID:

Q1.	(a) A full duplex link ranging from 700 kHz to 1200 kHz consists of two communication channels is shown in the figure below. **Compute** the link's bandwidth, carrier frequency of both channels and bit rate if the data is modulated by FSK. Consider d=1. 
Q2.	Assume we have ten voice channels, each occupying a bandwidth of 15 kHz. We need to combine these channels into a link ranging from 200 kHz to 400 kHz with guard bands of 5 kHz between each channel. a. Show the configuration in the frequency domain. b. Calculate the total bandwidth required for all channels and guard bands. c. Allocate frequencies for each channel within the specified range.
Q3.	Four channels are given, each with a different bit rate: 1st channel: 25 kbps 2nd channel: 20 kbps 3rd channel: 30 kbps 4th channel: 10 kbps The maximum allowable pulse stuffing is 5 Kbits. Explain the data rate management process by which you can multiplex the input channels. If a unit is 1 bit, illustrate the diagram. Compute the (i) frame duration, (ii) frame rate, and (iii) data rate of the output link (iv) duration of time slot (v)duration of a unit before multiplexing.