

Signals and Systems exam

$$V = \frac{1}{T} I \times R$$

Q1. a) SPI Transmission protocol

b) point to ~~point~~ point

c)

SCLK - Serial clock

MOSI - master out slave in

MISO - master in slave out

/SS - slave select

SCLK - is used as a clock to keep the signal in phase and in sync

MOSI - master transmits data to the slave peripheral

MISO - slave transmits data to the master peripheral

/SS - select which slave device to be in use

Q2 A)

a) Inverting amplifier

b) $-\frac{R_F}{R_I}$

c) $-\frac{24}{6} = -4$

d) ~~0.8~~ 0.8

?

e) ~~phase would be 270° out of phase~~ 180° out of phase

~~Q2~~ B)

a) Non inverting amplifier

b) $1 + \frac{R_F}{R_I}$

c) $1 + \frac{24}{6} = 1 + 4 = 5$

d) 0.55

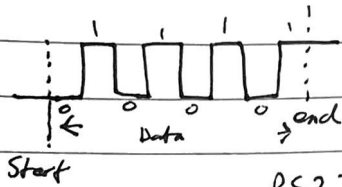
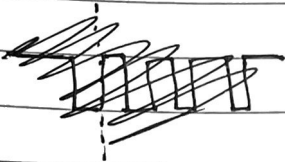
?

e) ~~phase would stay the same~~
phase stays the same

0100011001

Q3

- RS 232 transmission protocol
- Point to point transmission
- This protocol could be used to connect a printer using ports
- TX - Transmitter
RX - Receiver
0V = ground



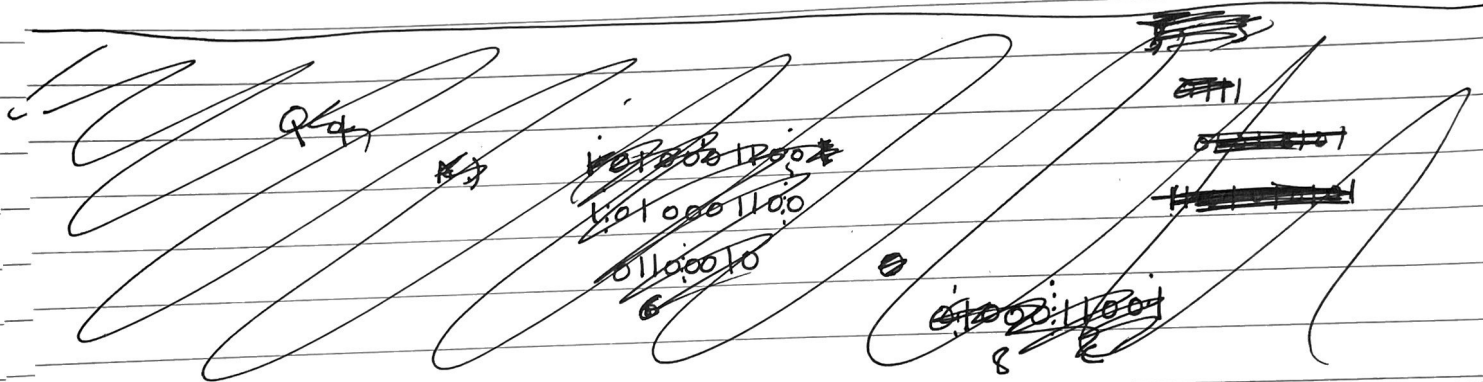
RS232 0xAA →

AA = 10 10

= 1010 1010

~~0010101011~~

0010101011



Q4 A)

A) 0100011001
10001100
0011:0001
3 1

~~0100011001~~

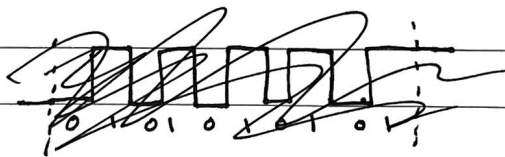
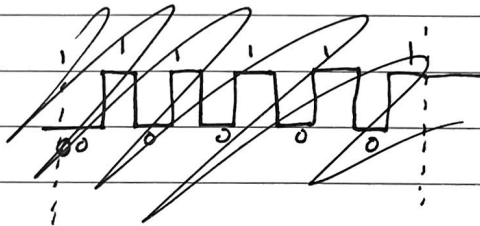
b) 1

B)

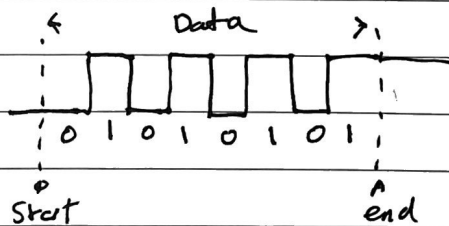
a) 0110001001
 11000100
 0010:0011
 2 3

b) #

~~Q3~~



Q3) D)



0xAA

10101010

← 0010101011