

Signals & Systems Exam

1.

a) SPI (Serial peripheral Interface)

b) ~~Half duplex~~ full duplex.c) - Serial clock - provides the ~~very~~ clock signal~~- main out / subnode in~~

- main out / subnode in - Data line - transmit data from master to slave

- main in / subnode out - Data line - transmit data from slave to master.

2. A) a) Inverting Amplifier.

b) $\text{Gain} = -\frac{R_F}{R_I}$

c) $\text{Gain} = -\frac{24k}{6k}$

$$= -4$$

d) 0.2V I/P, O/P = ? Gain = -4.

$$0.2 \times -4 = \underline{-0.8V}$$

e) Phase 180° .

b)

a) Non-inverting Amplifier.

b) $\text{Gain} = 1 + \frac{R_F}{R_i}$

c) $\text{Gain} = 1 + \frac{24k}{6k}$

$$= \underline{\underline{5}}$$

d) ~~0.11~~ $0.11 \times 5 = \underline{\underline{0.55}}$ ✓

e) 0

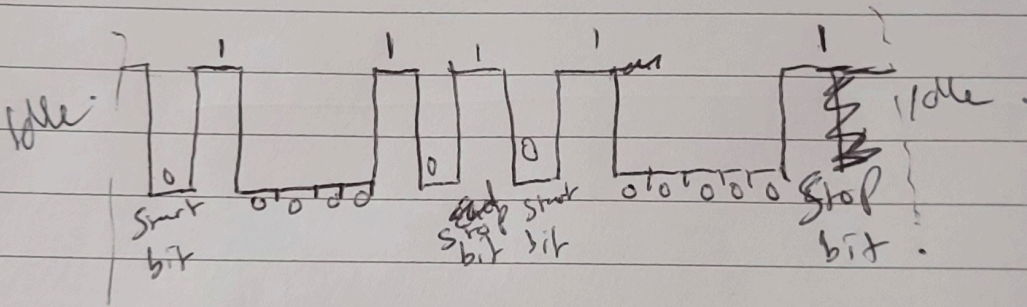
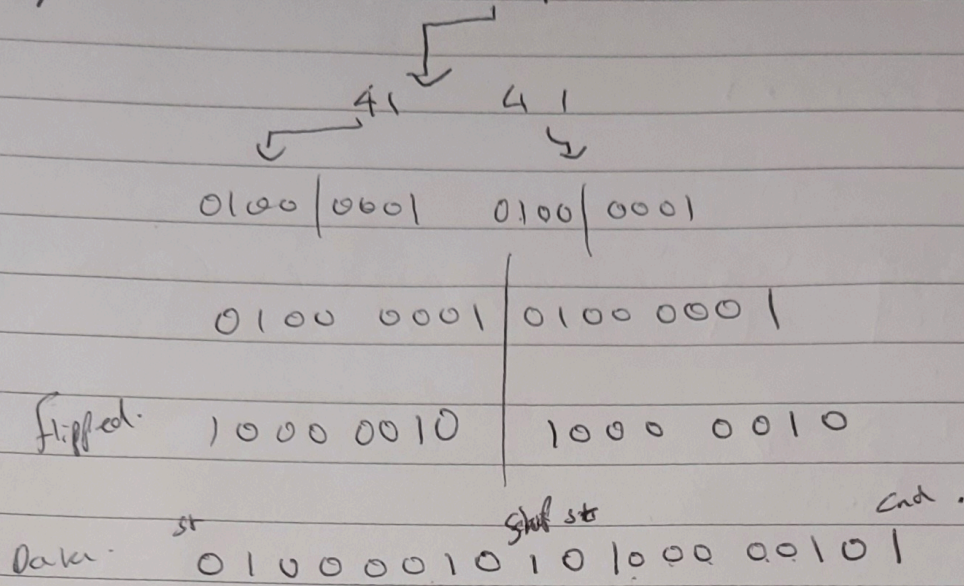
3.

a) RS232

b) point to point

c) ~~To send data from one computer to another~~
To send data from one interface to another

Q) $0x AA = \text{Hex } AA$



4.

A)

a) $010001100x$

Full: $00110001 \leftarrow \text{Data.}$

~~00110001~~
= Hex 31.

b) $0011 | 0001$

ASCII = 1.

b)

~~a)~~

a) 011 000 1001

Defin = 00 100011

~~= Hex 23~~ .3

0010 | 0011 = Hex 23 .

b)

~~Hex 23 = A4~~

Hex Ascii = #

