

1. A. a. Inverting Amplifier

1. A. b. $Gain = -\frac{R_F}{R_1}$

1. A. c. $Gain = -\frac{29}{2} = -14.5$

1. A. d. $0.345 * (-14.5) = -5.0025v$

1. A. e. 2π (180°) out of phase

1. B. a. Non-inverting Amplifier

1. B. b. $Gain = 1 + \frac{R_1}{R_2}$

1. B. c. $Gain = 1 + \frac{27}{2} = 14.5$

1. B. d. $14.5 * 0.62 = 8.99v$

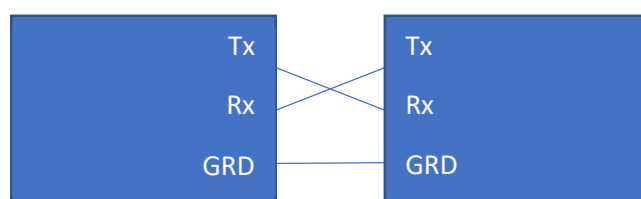
1. B. e. The same (0°)

2. A. a. $0100000101 \rightarrow 0\ 1000\ 0010\ 1 \rightarrow 0100\ 0001 \rightarrow 4\ 1$ 2. A. b. $4\ 1 \rightarrow "A"$ in ascii2. B. a. $0101010101 \rightarrow 0\ 1010\ 1010\ 1 \rightarrow 0101\ 0101 \rightarrow 5\ 5$ 2. B. b. $5\ 5 \rightarrow "U"$ in ascii3. a. I²C

3. b. Multi Master, Multi Slave

3. c. SDA – Serial Data; this is the data being sent, SCL – Serial Clock; this is the clock to which everything keeps synchronised

3. d. Micro controllers



4. a.

4. b. Single Master, Single Slave

4. c. Controlling a peripheral component e.g. printer

4. d. $A5 \rightarrow 1010\ 0101 \rightarrow 10100101 \rightarrow 0101001011$