The step numbers in this data sheet refer to those in the laboratory exercise instructions.

Step 2a:

*R*C value:

Step 5a:

*R*E value:

Steps 2 through 5:

Table 1. Calculated and measured amplifier Q-point data.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Amplifier | Calculated *I*C (mA)  (Prelab) | Calculated *V*CE (V) (Prelab) | Measured *I*C (mA) | Measured *V*CE (V) | *I*C  Percent Error | *V*CE Percent Error |
| CE, no RE, Fig. 1 |  |  |  |  |  |  |
| CE, with RE, Fig. 2 |  |  |  |  |  |  |
| CE, bypassed RE, Fig. 3 |  |  |  |  |  |  |
| CC, Fig. 4 |  |  |  |  |  |  |

Table 2. Calculated and measured amplifier gain data.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Amplifier | Calculated Gain Magnitude |*V*out/*V*in|  (Prelab) | Calculated Gain  Phase Shift  (Prelab) | Measured *V*in (V) | Measured *V*out (V) | Measured Gain Magnitude |*V*out/*V*in| | Measured Gain  Phase Shift | Gain Magnitude  Percent Error |
| CE, no RE, Fig. 1 |  |  |  |  |  |  |  |
| CE, with RE, Fig. 2 |  |  |  |  |  |  |  |
| CE, bypassed RE, Fig. 3 |  |  |  |  |  |  |  |
| CC, Fig. 4 |  |  |  |  |  |  |  |

Table 3. Calculated and measured gain data for CE amplifier with bypassed emitter resistor.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Amplifier | Calculated Gain Magnitude |*V*out/*V*in|  (Analysis Question 4) | Calculated Gain  Phase Shift  (Analysis Question 4) | Measured Gain Magnitude |*V*out/*V*in| | Measured Gain  Phase Shift | Gain Magnitude  Percent Error | Gain Phase  Percent Error |
| CE, bypassed RE, Fig. 3 |  |  |  |  |  |  |

Other observations: