Operational Amplifier

Slew Rate Measurement –
1. Build and verify the operation of the amplifier circuit using small, e.g., 10-100 mV, input signal.
2. Set the function generator for square wave generation at 5-10 kHz with an output of 1 V.
3. Display both the input and the output on the oscilloscope using DC coupling.
4. The slew rate is defined as the rate of rise in output voltage per µsec.
5. At the same time, you may also confirm the saturation voltage of the output which is the flat portion of the signal.
Frequency Response –
1. Set the function generator for sine wave generation at low, e.g., 1 Hz, with an output of 10-100 mV.
2. Display both the input and the output on the oscilloscope using DC coupling.
3. Gradually increase the frequency while monitoring the voltage gain until the gain drops to 70.7% of the initial value. This is the –3dB frequency.
4. Scan beyond to obtain the entire frequency response curve. Plot in semi-log plot, e.g., voltage gain versus log(frequency).
Offset Measurement –
1. Short the input to ground.
2. Measure the output of the operational amplifier with a volt meter in mV scale.
3. Tune the potentiometer until the offset becomes as close to zero as possible. The offset may drift as temperature changes.