Seismic wave attenuation of direct shear and P waves was investigated for the crust of Khorasan province of Iran, using 749 seismograms recorded by local earthquakes with ML between 1.0 and 5.6 occurred during the period between 2002 and 2006. Single station method (extended coda normalization method) was applied to analyze Qp -1 and Qs -1 by using the ratios of P and S waves to coda-wave amplitude spectra in the frequency range of 1.5 Hz to 36 Hz, as a function of distance. The Qp and Qs are analyzed by using 66 laps times from 22.5 seconds to 87.5 seconds for center-frequencies of 1.5, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14, 16, 18, 20, 24, 28, 32, and 36 Hz. The estimated values of Qp -1 and Qs -1 are highly frequency-dependent decreasing respectively from 0.016 and 0.014 at 1.5 Hz to 0.0011 at 36 Hz. They also decrease with the increase of lapse time and earthquake source distance. This indicates that the value of quality factor, Q, increases with depth. The estimated values of Qp -1 and Qs -1 are (0.023 ± 0.001)f(-0.79 ± 0.02) and (0.019 ± 0.000)f(-0.76 ± 0.02), respectively. The relatively low value of Q-factor obtained in this study agrees with the value which is generally expected for a seismically active region such as Khorasan province of Iran.