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Spectroscopic Observations of Novae V1065 CENTAURI and V1280 SCORPII using 45cm Cassegrain Telescope at Arthur C Clarke Institute, Sri Lanka

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The spectroscopic observations of two novae namely nova Centauri 2007 (V1065 CEN) and nova Scorpii 2007 (V1280 SCO) were made by 45 cm Cassegrain telescope with f/12 at Arthur C Clarke Institute, Sri Lanka during the period at 31st January to 20th Feb 2007. High resolution ($\lambda/\Delta\lambda$=22000) profiles in Hα (6563 oA) region were obtain for V1065 CEN, 6, 15 and 20 days after maximum and Hα profiles of the same resolution were obtained for V1280 SCO, 4 days after maximum, covering the early decline stages of novae.

V1065 CEN is He/N-type spectra which characterize a broad (Gaussian FWHM 49 oA), saddle shaped and asymmetric Hα emission line with out prominent P-Cyg absorption component. Completely different Hα profile of V1280 SCO shows prominent P-Cyg absorption and narrow emission line (Gaussian FWHM 26 oA) which can be classified as Fe II type nova. The absence of prominent P-Cyg structure in V1065 CEN suggests that the emission causes by discrete shell while the prominent P-Cyg structure in V1280 SCO evidences a wind-like structure. The expansion velocities of these two systems measured from the minima of the P-Cyg profiles are close to 2300 km/s for V1065 CEN, 6 days after the maximum and 716 km/s for V1280 SCO, 4 days after the maximum.

The light curves V-t, B-t and visual-t have been used to estimate the distances of both novae. Based on the photometric analysis, the Nova V1065 CEN can be classified as fast (11<t2<25) nova with the parameters t2V=21 days, t3V=28 days and t2B=23 days, t3B=31 days. The derived absolute magnitudes at maximum for nova V1065 CEN to be Mo,V = -7.58±0.18 and Mo,B= -7.75±0.25. The mean distance module 16.57 and the color excess EB-V = +0.6 correspond to a distance 8.51±0.33 kpc. The parameters t2V=12 days and t3V=14 days were calculated from visual-t light curve for nova V1280 SCO and It can be determine that the nova is in between very fast and fast nova. The rate of decline at t2, 0.48 mag/d (very fast>0.2 mag/d) clearly determine that V1280 SCO is classified as very fast nova. The mean absolute magnitude at maximum is calculated to be Mo,V=-8.7±0.1. Neglecting the interstellar reddening the estimated distance to the nova V1280 SCO is 3.2±0.2 kpc.