Oxidative stress is often implicated in many degenerative diseases and aging processes. It is a cause as well as effect of stress. Oxidative stress resulting from increased production of free radicals and reactive oxygen species, and/or a decrease in antioxidant defense, leading to damage of biological macromolecules and disruption of normal metabolism and physiology. Periparturient period is especially critical for health and subsequent performance of buffaloes. Hence, the present study was undertaken to assess the degree of oxidative stress during periparturient period, using twelve Mehsana buffaloes, which comprised of six nonpregnant (diestrous stage) and six pregnant (9 months) Mehsana buffaloes. These buffaloes were maintained on uniform feeding and management. Blood samples were collected from pregnant buffaloes during 30 days before to 30 days after parturition with 15 days interval between each collection. Blood samples were also collected once only at diestrous stage from non-pregnant buffaloes. The results of the present study revealed that the antioxidant vitamins viz. vitamin C, vitamin A and β-carotene was significantly (p< 0.01) decreased from 30 days before parturition and attained lowest levels on the day of parturition. But the concentration increased significantly (p< 0.01) from 15 days to 30 days after parturition. The findings suggested that the pregnancy and parturition lowers the antioxidant status due to transfer of these vitamins in formation of colostrum. The levels of vitamin C, vitamin A and β-carotene were found to be significantly (p< 0.01) higher in non-pregnant buffaloes as compared to pregnant buffaloes on the day of parturition, suggesting more utilization of these vitamins for maintaining homeostasis in the absence of oxidative stress.