SUMMARY & CONCLUSION
(1) The aim of present investigation was to study the physico-chemical features of water and the distributional pattern and relative abundance of different planktonic groups and taxa in Manasbal and Nageen lakes and to evaluate the trophic level of these waters.

(2) Manasbal lake is deeper and larger than the Nageen lake, but the latter has more impact of human interference. Manasbal lake with an area of 2.8 sq.km and a maximum depth of 12.5m is a semi-drainage type with no permanent inflow channel whereas Nageen lake covering an area of 4.5 sq.m. with a maximum depth of 6m has a permanent outlet on its north-western end.

(3) Three sampling sites were selected in each lake, one located in the thick macrophytic belt (Site I), the second in the central part of the lake almost free from macrophytes (Site II) and the third near human settlements with moderate macrophytic growth (Site III).

(4) Surface waters being directly in contact with the atmosphere, the thermal structure of lakes is straightway influenced by solar radiation. In
both these lakes the water temperature range and fluctuations showed a similar pattern with surface water being almost always warmer than the bottom layers. Water temperature in Manasbal fluctuated from 6.5°C to 28.0°C and in Nageen from 3.0°C to 28.0°C.

(5) Water clarity was higher in Nageen lake than in Manasbal lake. The transparency values in Manasbal lake fluctuated from 0.1 m to 1.6 m in the littoral zone and from 3 m to 5 m in the limnetic zone, while in case of Nageen lake the range was 0.1 m to 2.0 m and 2 m to 4 m in the two zones respectively.

(6) Both lakes were alkaline throughout the period of study (pH 7 - 10.5 in Manasbal and 7.5 - 11 units in Nageen). The fluctuations in pH in the lakes was related to photosynthetic activity.

(7) Oxygen concentration in Manasbal & Nageen revealed significant variations from unsaturated conditions to super-saturated conditions. In both the lakes the oxygen concentration recorded an irregular seasonal pattern and the fluctuations were mainly influenced by rates of photosynthesis and decomposition.

(8) A comparison of present data on chloride
concentration with the 1970-71 data of Zutshi & Vass (1978) and Kaul (1977) in Nageen & 1976-78 data of Yousuf & Qadri (1981) in Manasbal lake reveals that chloride concentration in both the lakes has significantly increased over the past two decades.

As per the classification of Clegg (1974) both the lakes come under hard water category on the basis of calcium and magnesium concentration.

The concentration of NO₃-N fluctuated from traces to 0.243 mg l⁻¹ in Manasbal and from traces to 0.192 mg l⁻¹ in Nageen lake. Higher quantities were generally recorded during winter. Ammoniacal nitrogen fluctuated from 0.01 - 4.67 mg l⁻¹ in Manasbal and from undetectable levels to 4.43 mg l⁻¹ in Nageen. The high quantities were recorded in Spring and seemed to be related to high rainfall in the catchment.

PO₄-P showed no regular seasonal trend in both the lakes. The values fluctuated from undetectable level to 0.3 mg l⁻¹ in Manasbal and from 0.003 to 2.02 mg l⁻¹ in Nageen lake. Nageen lake showed
generally higher concentration of the nutrient than Manasbal lake

The phytoplankton population of the Manasbal lake was dominated by Bacillariophyceae, followed by Chlrophyceae and Cyanophyceae, while in case of Nageen lake Chlrophyceae was the dominant group, being closely followed by Bacillariophyceae and Cyanophyceae. Such a type of algal composition signifies transitional trophic level of the lakes.

In Manasbal lake 48 diatom taxa and 46 green algae taxa were recorded whereas 44 diatom and 57 green algae taxa were recorded from Nageen. The most dominant species of Bacillariophyceae were Synedra ulna, Cymbella ventricosa, C. lanceolata, Gomphonema olivaceum, Fragillaria capucina, Amphora acuticosa, Diatoma elongatum and Rhopalodia gibba. Most of these diatoms have been separated in organically polluted waters (Dickman, 1975).

The dominant Chlrophyceae taxa in both the lakes included Ankistrodesmus, Scenedesmus, Pediastrum, Coenaria, Closterium, & Selenastrum trum, Tetradon & Pandorina. Most of them have been reported to be abundant in eutrophic waters (Hutchinson, 1967).
Griffites (1923) and Munawar (1970) attribute higher percentage of Chloroeocales to higher oxygen concentration. The present observations are in conformity with these findings.

Cyanophyceae took the third place in respect of population density, being represented by seven taxa in both the lakes of these - Merismopedia punctata, M. elagana & Microcystis aeruginosa were the main contributors. Higher population of blue green was recorded during warmer months in both the lakes which is in conformity of the conclusions drawn by Gonzalves & Joshi (1946).

The euglenoid population in the present lakes was insignificant as compared to other phytoplankton groups.

Chrysophyceae was represented by a single species Dinobryon sortularia in the two lakes and contributed only very small amount of the total phytoplankton. This species occurred generally at a time when other groups were either gradually decreasing or had acquired the least population.
Dinophycean population in the lakes was very low and was represented by three species only. Presence of *Ceratium hirundinella* & *Peridinium pusillum* in Manasbal indicates advanced trophic level of this water body while the presence of *Peridinium pusillum* & rareness of *Ceratium hirundinella* indicates that this water body is at a relatively high level of eutrophication than Manasbal.

According to Cyanophycean index of Nygard both the lakes were found to be on similar trophic status, while Chlorophycean index showed Nageen to be on higher trophic level than Manasbal. And according to Euglenophycean index Manasbal is slightly on higher status than Nageen lake. But overall perusal of physico-chemical and biological parameters indicate that the lakes are not very far advanced in their trophic evolution.

Among zooplankton rotifera was the most dominant group, followed by Cladocerans and Copepods. Most of zooplankters recorded during the present study, like *Asplanchna priodonta*, *Branchi奥斯ms angularis*, *E.bidentata*, *Keratella cochlearis*, *Notholea*
acuminata, Anuraeopsis, Bessima longirostris, Chydrorus sphaericus and Cyclopes vicinus are typical eutrophic forms (Hutchinson 1957 and Hakkari, 1977).

The data obtained during the present study conclusively show that both the water bodies are in a transitional period. Although both the lakes are progressing in their trophic level, the physico-chemical as well as biological data of Nageen lake clearly indicate its higher trophic rate than the Manasbal lake. This is directly related to the rate of the human interference in the catchment of the lakes. The Nageen lake being an urban waterbody is having more exposure to the human interference than the Manasbal lake, a rural water body.