CONCLUSIONS

The present study draws the following conclusions.

1. Out of 8 PAHs studied, BaP is widely reported as highly carcinogenic.

2. The annual average total concentration of the 8 PAH studied in Delhi ambient air ranges from 406 ng/m$^3$ minimum at JNU to a maximum of 1056.12 ng/m$^3$ at Dhaula Kuan. Annual average value for Delhi works out to be 849.06 ng/m$^3$.

3. The TPAH in Delhi comprises CH 55%, BeP 14%, PA 6.8%, B(ghi)P 6.4%, BbF 5.7%, BaA 5.3%, Fluor 3.8% and BaP 3%.

4. The annual average of BaP is 34.76 ng/m$^3$ at Vasant Vihar, however the annual average in Delhi, considering all the 4 sites is 26.44 ng/m$^3$. This is more than the 10 ng/m$^3$ value, recommended as a "preventive guide" by Pott and Dolgner (1980).

5. Of the 8 PAHs studied Chrysene, Benzo(e)pyrene, Benzo(ghi) Perylene were predominant in all the samples analysed.

6. The TPAH and individual PAH compounds showed a typical seasonal variation. The "TPAH" concentration is higher during the winter months and lower during summer months. In winter months there is low wind speed, and more of calm conditions, whereas in the summer months there were high day temperatures, there were winds attaining a speed
of 0-30 km/hr. The pre and post monsoon months also recorded high concentration of TPAH. Similar pattern was observed in the case of individual PAH compounds.

7. The main source of TPAH in three out of four sites is due to automobile traffic. In JNU, the control point, the aircrafts exhaust contribute to the PAH concentration besides the automobile traffic. In case of Vasant Vihar the bus depot which is adjacent to the sampling point contributes to the concentration of PAH, because of the operational and maintenance works of buses. Dhaula Kuan and Defence Colony are busy traffic intersections with high traffic density.

8. To assess the quantum of pollution due to the heavy diesel vehicles, the exhaust particulate samples were collected directly from diesel vehicles and simultaneously ambient samples were also collected in the immediate vicinity at a point 4 feet away from the vehicles. It was observed that the amount of dilution of (TPAH) is approximately five times. This will be a factor common in all traffic intersections where sampling was done, since the concentration of PAH will depend on the traffic density at the intersection and other factors including meteorological conditions.

9. On exposure to sun light, all 6 PAHs got photo-oxidised to the extent 60% - 80% during the first 10 hours. This
percentage went up to (90% - 95%) in 15 hrs, except in the case of fluoranthene where the degradation is about 70% (Pucknat, 1981). The four carcinogenic PAH degraded much faster than the non-carcinogenic ones.

10. The SPM concentration (annual average) in Delhi ranges from 199 μg/m³ (JNU) to 361.23 μg/m³ (Dhauila Kuan) and an annual average of 292.28 μg/m³. This value of SPM in Delhi is greater than the "reference value" specified by NEERI (150 μg/m³) and just crosses the level for residential areas specified by Central Pollution Control Board, India (200 μg/m³). However, compared to Central Pollution Control Board's standard value for SPM for industrial cum mixed area (500 μg/m³), SPM level in Delhi has just reached the 60% mark.

11. SPM, also showed a seasonal variation, with high concentration of SPM in summer months and low concentration in monsoon months. The low concentration of SPM in monsoon month is due to the scavenging effect.