REVIEW OF LITERATURE
A study on landscape styles has been done from past history of some nations to pick up better ideas during comparative study of the investigation and in formulation of model landscape design.

Breasted (1969) and Carpenter et al (1975) mentioned in their books 'Egyptian Gardens' and 'Plants in the Landscape' that ornamental plants were used in the Egyptian garden from about 200 B.C. Both useful and ornamental trees were planted in the garden. Among these, grapes and ivy were trained on rafters and arbors for shade. Flowering plants were arranged symmetrically. Rose, Jasmine, Myrtle and other plants were grown either on land or in pots. The concept of 'enclosed garden' for privacy was developed during that time.

A short description of the world famous hanging garden of Babylon was given by Berral (1966) and Carpenter et al (1975) in their books. This garden was built about 600 B.C. The garden was constructed in the form of a pyramid like an artificial hill having a square/rectangular base. Steps were constructed on the base to create terraces. Trees, shrubs and seasonal flowers were planted on each terrace to reflect the hill as small man-made mountain. The big trees were planted in hollow soil-filled pillars of the lower terrace.

Hipple (1966) and Cowell (1978) described about
the Roman style garden in their books that every house of Rome was adorned with flowering plants in ancient time. The roof of the houses were converted to gardens with plantation and other structural features. Raised beds of two to three feet high were developed in rocky and poorly drained areas. Rose, Lilies, Narcissus, Anemone, Iris, Poppy, Amaranthus, Verbena, Periwinkle and Corcus were grown in the raised beds. Other herbaceous plants such as basil, sweetmarjoram, thyme were grown for fragrance. Pine, Oak, Laurel, Myrtle, Olive, and Cypress were common plants. The art of topiary or plant sculpture was the special feature of Roman gardens. Juniperus, Boxwood and Rosemary were clipped into pyramids, cones and various animal forms.

Triggs, (1964), Carpenter et al (1975) and Cowell (1978) mentioned in their books that gardening were practised in north and west of Italy in the beginning of the monastic era in the sixth century A.D. Flowers were treated as paganism by christians. Rose was the favourite flower for this purpose. Vegetables and aromatic or medicinal herbs were used in the garden as primary crop, flowers were for fragrance, colour and for church altar. The enclosed courtyard of the garden known as 'Cloisters' contained grass plots intermingled with beds of flowering plants. These areas served as places of refuge, seclusion and meditation. Burial grounds were also planted with trees and shrubs. During renaissance period, gardens were developed in the shape of villa. A villa was
comprised of 10 to 15 acres of land located in the slope of hill. The slope was divided into three or four terraces. The lowest terrace served as the principal entrance. It contained formal flower garden where boxwood, rosemary, yew and ivy were used for edging. Oaks, Cypress, Stonepine and Chesnut were functionally important for providing shade. Topiary was an effluent art in that period. The art of 'espalier' was also practised. Plants were grown for man-made architectural features rather than natural beauty.

Carpenter et al. (1975) again mentioned about the garden of France in his book that small gardens known as 'pleasance' contained flowers in beds or in pots on the wall. Trees and shrubs were clipped to get shape. Privet, Yew, Sweet thorns were planted for privacy. Orchards were developed not only with fruit trees but also contained herbs and flowers. Topiary on plant was the principal feature of the garden. Trees were planted in closer spacing to form solid wall of greenery. Flower beds were angular or rectangular, but later on ornate curves became fashionable. Violets, wall-flowers and Pintas were used extensively in flower beds. The corners were punctuated with clipped evergreen boxwood.

Cowell (1978) described that Moorish gardens in Spain during the fifteenth century was characterised by a few court yards. One of these was developed as outdoor room, one contained simple hedge to develop patterns. Another was
fully planted to provide shade. Golden yellow colour from fruits and orange and from blossoms were favourite colours of Spanish garden.

Hyams (1964), Amherst (1968) and Cowell (1978) mentioned in their books about the English garden that a new era began during the Tudor period (1519-1558). Flower beds were of geometric patterns surrounded by boxwood or low-growing shrubs. Clipped evergreens at the corners for formal beds, arbore formed by trained trees and vines and variety of statues, sundials etc. were the special features of the English garden. The Hortus Botanicus Garden contained more than 1,600 varieties of plants found in greenhouse, open space and in orangery. Thyme, Rose, Lavender, Gilly and Lilies were used in the garden as fragrant herbs and shrubs. Lavenders also used as hedges. Topiary were made from \textit{juniperus}, yew, rosemary and privet. Flower beds were decorated with violet, daisy, lily of the valley, marigold, poppy, \textit{corcuses}, colchicums, foxglove, verbena, larkspur, cornflower, forget-me-not, gilly, mallow, rose, sweet berys and silver lily.

Brown (1715-1783) successfully changed the formal style of English garden to informal style as mentioned by Copper (1952) and Cowell (1978) where size and shape of lawn were increased and trees and shrubs were used as belts. Topography of an area was reshaped by lowering hillsides,
elongating slopes, redirecting streams and creating lakes. Carpenter et al. (1752) states that Sir Humphery Repton (1752-1818) refined the naturalistic English garden as park with broad lawns and meadows where trees were arranged in informally balanced style.

During the period of Ming dynasty (1368-1644), garden with ornamental trees reached its highest development in China. According to Clifford (1963) and Siren (1971) natural style dominated the Chinese gardens. Each of trees, herbs, stones etc. took a symbolic meaning until the art of gardening fixed under laws called 'Fen shoi'. Gardens were made to create an environment for meditation only and not for pleasure. Trees were planted in groves in grave sites as well as around the monasteries. Plants associated with life of Buddha such as sal, asoka, banyan, sirisa, mango, tala, champaka etc. were used in the Chinese gardens. In later part large number of ornamental trees were planted for the pleasure of kings. Litchi, Loquat, Persimmons and Oranges were used as fruit trees. Camellia, Peonays and Chrysanthemum were main flowering plants. Plum trees were favourite for their pure white flowers. Bamboos were for their beauty with variegated colours of stem and elasticity. Apart from these, Chinese gardens were full of Acer, Sophora japonica, Golditschia sinensis, Robinia pseudoacacia, Albizzia julibrissin, Catalpa ovata and Allanthus eltimissima.
Conder (1964), Harder (1970) and Sima (1970) mentioned about the style of Japanese gardens in their books 'Landscape Gardening in Japan', 'Japanese gardens', and 'Gardening the Japanese way', respectively that these gardens were influenced by Chinese style with symbolism and the expression of metaphysical ideas. Subsequently gardens became the core of ornamental trees. Unique plants were selected for achieving their symbolic meaning and replicating nature. Evergreen trees were used for the year round beauty. Flowering trees and shrubs were intermingled with the evergreens. Special treatments on plants by clipping added peculiar effect to the garden. Similarly the art of bonsai was practised on maple, oak, pine and cherry. Other trees and shrubs of Japanese garden were cypress, Chamaecyparis obtusa, C. pisifera, Sciadopitys, verticillate, Acer palmatum, Ilex integra, Ternstroemia japonica, Oak, Camellia japonica, Rhododendron, cherry, cycas etc.

In eighteenth century both formal and informal form of Colonial gardens were flourished in America as mentioned by Clifford (1963) in his book, 'A History of garden design'. Medicinal, vegetables, other herbs and fruit trees were planted with few ornamental plants viz., lilac, roses, lillies, tulips, hollyhock, Laburnum anagyroides, Hibiscus syriacus, Populus nigra and Viburnum opulus in American gardens.

Randhawa (1976) wrote about the ancient gardens of India in his book 'Garden Through the Ages' that during
fifth century A.D. Kalidas mentioned in the 'Abhigyan Sakuntala an informal style of garden known as Asharama where ashoka, dhak, jasmine, champaka, kadamba, kesara and ketak were used as ornamental plants. These ornamental trees were used for beauty of Ashrama, garlanding, worship and festivals. According to Randhawa (1976) Vatsayayana described four types of ancient gardens of India Pramodyam, Udyam, Brikshvatika and Nandanvan. Pramodyan was a confidential type of garden meant for king and queen, and had the characteristic feature of screen. Udayan was a king’s garden surrounded by lovely ornamental trees like amaltas, ashoka for spending leisure time. Brikshvatika was royal place where the ministers and courtiers made merry with courtesans. The garden was decorated with jasmine, champaka etc. Nandanvan was dedicated to Lord Indraj where 'Parijat' was the main flowering plant. Ponds found in royal palaces were decorated with water lilies and lotuses. Nim or Pipal were planted to set-up swing. In domestic gardens Trapu bispinosa, Jasminum grandiflorum, Amaranthus, Tabernaemontana coronaria, Nadyworta, Hibiscus, Andropogon schaenathus and A. muricatus were planted.

Randhawa (1971), Crowe and Haywod (1972) wrote that the Muslim rulers enriched the socio-cultural life of India in many ways. Babar, the first Mughal Emperor (A.D., 1526) introduced a new style of garden known as 'Mughal garden'. This was a formal style garden with the introduction of
ornamental plants used for protection against hot wind during summer. Hedges were developed from lavender plants, big trees were clipped into fantastic geometric shapes. **Cypresses** and flowering trees like *Bauhinea variegata*, orange and lemon trees, plum and apple tree were available in Mughal gardens. The darkgreen cypress provided background to the silvery spray of plums and pink blossoms of almonds. The Mughals mostly planted white, purple, and mauve coloured iris near lilac bushes. Daffodils and *Narcissus* under apple, and quince and *tulip* under pear and plum, trees. In summer, roses, *Carnations*, *jasmines*, *hollyhock*, *peonies*, *Delphinium* grew for colourful effect.

The well known Mughal garden at Pinjor near Simla was built in the reign of Emperor Aurangzeb. Randhawa (1971) states in his book 'Beautiful Gardens', that these beautiful gardens were situated in such a way that they embraced wide view of Kasauli hills and the Siwalik range. The sloping nature of the ground and the presence of a building with perennial streams were taken advantage to utilize the land efficiently. The road sides of the garden were made beautiful with dhak trees laden with crimson flower and amaltus with yellow flowers. The white washed gate was smothered with magenta coloured *Bougainvillea*. Flanking the canal were stately avenues of the royal plum, with their graceful plumes waving gently in the morning breeze. The seasonal borders were made colourful
with phlox, verbena, candytuft and pansy. Under the shade of mango tree, blue ageratum lessened the darkness.

In the eighteenth and nineteenth centuries the ornamental trees of English gardens had a profound impact on the gardens of India (Randhawa, 1971). Lawn, herbaceous borders of flowering annuals and informal ornamental planting of trees, shrubs, climbers were prevalent. The colourful annuals phlox, verbena, pansy, larkspur, *nasturtium*, *pahlia*, cornflower, candytuft, aster, carnation, love-in-a-mist, snapdragon and other ornamental plants were introduced into India by English people.

The Lal Bagh of Bangalore named after red rose for its high collection was an informal type of garden. The garden was full of fruit and ornamental trees. Litchi Mango, Apricot, Apple, Raspberries, Black berries, Sweet lime, Grapes, Guava, Dates, Orange, Fig and Pomegranate were fruit trees while *Delonix regia*, *Cassia fistula*, *Iaccaranda mimosifolia*, *Cassia javanica*, *Ficus religiosa*, *Kigelia pinnata*, *Lagerstroemia flos-regina*, *Mimusops elengi*, *Nerium indicum*, *Peltophoruma*, *petrocarpum*, *Polyalthia longifolia* etc. were the flowering trees in the garden.

The planting design of New delhi was patronised by Griessen under initiative of famous architect Sir Edwin Lutyens. *Eugenia operculata* were used in road side avenues for their light green leaves. Other road side trees were
Kigelia pinnata, Pongamia glabra, Ficus religiosa, Celtis auslarlis, Sterculia alata, Cassia fistula, Anthocephalus indicus, Hardwickia binata and Melia azadirachata. Road junctions were decorated with Jacaranda, amultus, gulmohur and kanchan and shrubs like Bougainvillea and Petraea volubilis as mentioned by Randhawa, (1950), Manican and Ghosh (1968).