

Practical Manual

on

Landscaping

AES-394 3(2+1)

(For Undergraduate Agriculture students)

Dr. Gaurav Sharma

Associate Professor

Dr. Priyanka Sharma

Assistant Professor



2019

Department of Floriculture and Landscaping
College of Horticulture & Forestry
**RANI LAKSHMI BAI CENTRAL AGRICULTURAL
UNIVERSITY, Jhansi-284003**

Syllabus Landscaping: AES 394 3(2+1):

Identification of trees, shrubs, annuals, pot plants; Propagation of trees, shrubs and annuals, care and maintenance of plants, potting and repotting, identification of tools and implements used in landscape design, training and pruning of plants for special effects, lawn establishment and maintenance, layout of formal gardens, informal gardens, special type of gardens (sunken garden, terrace garden, rock garden) and designing of conservatory and lathe house. Use of computer software, visit to important gardens/ parks/ institutes.

Name of Student

Roll No.

Batch

Session

Semester

Course Name :

Course No. :

Credit

Published: 2019

No. of copies:

Price: Rs.

CERTIFICATE

This is to certify that Shri./Km.ID No.....has completed the practical of course.....course No. as per the syllabus of B.Sc. (Hons.) Agriculture/ Horticulture/ Forestry semester in the year.....in the respective lab/field of College.

Date:

Course Teacher

INDEX

S. No.	Practical Exercise	Page No.
1.	To study the identification of trees	
2.	To study the identification of Shrubs	
3.	To study the identification of annuals	
4.	To study the identification of pot plants	
5.	To study about propagation of trees and shrubs	
6.	To study about propagation of annuals	
7.	To study about the care and maintenance of plants	
8.	To study about potting and repotting	
9.	To study about identification of tools and implements used in landscape design	
10.	To study about training and pruning of plants for special effects	
11.	To study about lawn establishment and maintenance	
12.	To design layout of formal and informal gardens	
13.	To design special type of gardens: sunken garden	
14.	To design special type of gardens: terrace garden	
15.	To design special type of gardens: rock garden	
16.	To design conservatory and lathe house	
17.	To study about use of computer software	
18.	Visit to important gardens/ parks/ institutes	
	APPENDICES	

Practical No. 1

Objective: To study the identification of trees

Exercise: Identify different trees according to their classification

Ornamental flowering trees: Grown for the beauty of their showy and ornamental flowers.

Sr. No.	Common Name	Botanical Name	Family	Flower colour and time
1.	Earleaf Acacia/ Auri			
2.	Devil's tree			
3.	Neem			
4.	Orchid tree/ Purple Bauhinia			
5.	Yellow Bauhinia/ Orchid tree			
6.	Orchid tree / Kachnar			
7.	Silk Cotton tree/ Simbal			
8.	Dhak/ Palash/ flame of the forest			
9.	Bottle Brush			
10.	Indian Laburnum/ Amaltas			
11.	Java Cassia			
12.	Burmese Pink Cassia			
13.	Kasod tree			
14.	Silk floss tree			
15.	Gulmohar/ Royal Poinciana			

16.	Indian Coral tree			
17.	Silver oak			
18.	Neeli Gulmohar			
19.	Sausage tree			
20.	Giant Crepe Myrtle			
21.	Mahua			
22.	Champak/ Champa			
23.	Bara champa			
24.	Tree jasmine/ Indian cork tree			
25.	Molumein rosewood			
26.	Yellow Flamboyant			
26.	Pagoda tree/ Temple tree			
27.	Pagoda tree/ Temple tree			
28.	Red Frangipani			
29.	Sita Ashoka			
30.	Fountain tree/ African Tulip tree			
31.	Rosy trumpet tree			
32.	Silver trumpet tree			
33.	Roheda			

2. Foliage trees: Trees grown for their showy ornamental foliage or for providing shade in garden.

No.	Common Name	Botanical Name	Family
1.	Sat Patia or Devil's tree		
2.	Monkey Puzzle Tree		
3.	Australian pine tree		
4.	Cedar pine/ Deodar		
5.	Saru		
6.	Chalta		
7.	Blue gum tree/ Safeda		
8.	Jamun/ Java plum		
9.	Bohr or Banyan tree		
10.	Pipal		
11.	Rubber tree		
12.	Chinese Juniper		
13.	Chinaberry tree/ Drake		
14.	Golden Bottle brush		
15.	Spanish cherry/ Maulsari		
16.	False Ashok		
17.	Chirpine		
18.	Pongam tree		
19.	Bayur tree/ Kanak Champa		
20.	Buddha coconut		
21.	Putranjiva		
22.	Arjun tree		

Botanical names of trees for specific conditions:

Wind resistant trees	
Salt resistant trees	
Drought resistant	
Wet land trees	
Fast growing Trees	
Shade giving trees	
Trees tolerant to dust and smoke	
Trees for noise reduction	

Practical No. 2

Objective: To study the identification of Shrubs

Exercise: Identify different shrubs according to their classification

Flowering shrubs: Shrubs are grown for their beautiful flowers.

S. No.	Common Name	Botanical Name	Family	Flowering time
1.	Abelia			
2.	Chinese lantern			
3.	Chenille plant/ Cat's tail			
4.	Sleeping Hibiscus			
5.	Milk weed			
6.	Philippine violet			
7.	Bell bauhinia			
8.	Bougainvillea			
9.	Datura			
10.	Peacock flower			
11.	Pink Powder puff			
12.	Camellia			
13.	Karonda			
14.	Pili Kaner			
15.	Desert Cassia			
16.	Scrambled egg bush			
17.	Din ka Raja			
18.	Pink Cestrum			
19.	Rat ki Rani			
20.	Bleeding heart			
21.	Rockspray Cotoneaster			
22.	False Heather			
23.	Golden shower			
24.	Gandhraj			
25.	Firebush/ humming birdbush			
26.	Changeable Rose			
27.	China Rose			
28.	Rose of Sharon			
29.	Cup-n-Saucer			

30.	Jungle geranium			
31.	Jacobinia			
32.	Peeli chameli			
33.	Motia			
34.	Sawani			
35.	Trailing Lantana			
36.	Mussaenda			
37.	Kaner			
38.	Parijaat/ Har-Shingar			
39.	Chitra			
40.	Christmas Flower			
41.	Mexican petunia			
42.	Fire cracker plant			
43.	Pinwheel flower/ Chandni			
44.	Yellow trumpet bush			
45.	Purple king's mantle			
46.	Forest Jasmine			

Foliage shrubs: These shrubs are grown for their foliage either green or variegated

S. No.	Common Name	Botanical Name	Family
1.	Acalypha		
2.	Golden Dewdrop		
3.	Privet or Japanese spindle		
4.	Caribbean copper leaf		
5.	Chinese croton		
6.	Weeping fig		
7.	Willow leaved Justicia		
8.	Mehndi		
9.	Japanese Privet		
10.	Miniature Holly		
11.	Golden bottle brush		
12.	Mouse tail plant		
13.	False Eranthemum		
14.	Nirgundi		
15.	Forest Jasmine		

Practical No. 3

Objective: To study the identification of annuals

Exercise: Identify different annual flowers in the campus and note down distinguishing characteristics along with common name and family.

Annual flowers, commonly called as seasonal flowers are classified as winter, summer and rainy season annuals.

Winter season Annuals:

Sr. No.	Common Name	Botanical Name	Family	Colour
1.	Paper Flower			
2.	Hollyhock			
3.	Snapdragon			
4.	African Daisy			
5.	Swan River Daisy			
6.	Sticky paper daisy			
7.	English daily			
8.	Greater quacking grass			
9.	Pot marigold			
10.	China aster			
11.	Corn flower			
12.	Sweet sultan			
13.	Wall flower			
14.	Clarkia			
15.	Plains tickseed			
16.	Lance-leaved coreopsis			
17.	Garden Cosmos			
18.	Sulfur Cosmos			
19.	Larkspur			
20.	Dahlia			
21.	Sweet William			
22.	Chinese pink			
23.	African daisy			
24.	Californian poppy			
25.	Treasure daisy			
26.	Annual chrysanthemum			
27.	Annual baby's breath			
28.	Straw flower			
29.	Candytuft			
30.	Hare's-tail or Bunnytail			

31.	Sweet pea			
32.	Sea-lavender /Statice			
33.	Toadflax			
34.	Sweet Alyssum			
35.	Lupin			
36.	Stock			
37.	Ice plant			
38.	African bush daisy			
39.	Tiger Monkey flower			
40.	Bells of Ireland			
41.	Nemesia			
42.	Love -in- a -mist			
43.	Petunia			
44.	Drummond's Phlox			
45.	Common poppy			
46.	Fairy primrose			
47.	scarlet sage			
48.	Cineraria			
49.	African Marigold			
50.	French Marigold			
51.	Wishbone flower			
52.	Nasturtium			
53.	Verbena			
54.	Pansy			

Summer and rainy season annuals

No.	Common Name	Botanical Name	Family	Colour
1	Cock's comb			
2	Plumed cockscomb			
3	Love-lies-bleeding			
4	Blanket flower			
5	Bachelor's button			
6	Sunflower			
7	Moss Rose			
8	Summer Cypress			
9	Balsam			

10	Impatiens			
11	Mexican Sunflower			
12	Periwinkle			
13	Zinnia			

Practical No. 4

Objective: To study the identification of pot plants

Exercise: Identify different pot plants in the campus and write distinguishing characteristics along with common/botanical name and family

Pot Plants: Pot plants refer to a group of ornamental plants, both flowering and foliage type, used for decoration of house interiors, patios, porticos, stairs, window sills etc. The group includes variety of plants viz., trees (juvenile), shrubs, herbs, bulbs/ tubers/ rhizomatous plants, succulents, etc. in many forms and growth habit, which are mainly grown in pots.

Indoor plants are of following types:

A. Foliage type: Plants having ornamental foliage but inconspicuous flowers.

Examples:

.....

.....

.....

.....

.....

B. Flowering Type: Plants that produce conspicuous flowers are flowering type indoor plants.

Examples:

.....

.....

.....

.....

.....

C. Ferns: Ferns are valued for their beautiful foliage beauty.

Examples:

.....

.....

.....

.....

.....

.....
D. Palms: Palms have elegant foliage in different forms and patterns.

	Botanical name
Feather-leaved palms	
Fan-leaved palms	

E. Bromeliads: Bromeliads have colourful leaves in rosette form as well as attractive inflorescence.

Examples:

.....

.....

.....

.....

.....

.....

.....

F. Bulbous/ Rhizomatous plants: Bulbous plants include true bulbs but also plants that grow from tubers, corms and rhizomes. These are basically the storage organs.

Examples:

.....

.....

.....

.....

G. Succulents: Succulent are plants that are able to store moisture in succulent tissue either in leaves, stems or rootstock.

Examples:

.....

.....

.....

.....

.....

.....

.....

.....

.....

Practical No. 7

Objective: To study about the care and maintenance of plants

Exercise: Write down about the requirements for healthy pot plants

Sunlight:

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

Fertilizers and manures:

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

Watering and care:

.....

.....

.....

.....

.....
.....
.....
.....
.....
.....

Practical No. 8

Objective: To study about potting and repotting

Material **required:**
.....

Exercise: Perform potting and repotting of pot plants and draw diagram of steps followed for potting and repotting of plants

Procedure of Potting:

.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....

Procedure of Re-potting:

.....
.....
.....
.....
.....
.....
.....
.....
.....

.....

.....

.....

.....

.....

.....

.....

.....

Practical No. 9

Objective: To study about identification of tools and implements used in landscape design

Exercise: Identify different tools and implements used for making landscape design.

Drawing equipment and instruments:

Write the uses of following instruments used in a drawing Board

Equipment/instruments	Uses and description
French Curve	
Drafting tape	
45° Triangle	
30-60° Triangle	
T square	
Scale	
Compass	
Eraser	
Dividers	
Pencil Pointer	

Dusting brush	
Erasing Shield	
Drawing board	
Drafting machine	

Instruments required for field measurement in landscaping:

Instruments	Description
Measuring tape	
Cross stop	
Ranging rod	
Pegs and bars	

Practical No. 10

Objective: To study about training and pruning of plants for special effects

Materials required: Secateur, Pruning knife, Bordeaux paste.

Exercise: Write the difference between training and pruning along with the purpose for which it is done

What is Pruning?
.....
.....
.....
.....
.....
.....
.....
.....
.....

Objectives of pruning:
.....
.....
.....
.....
.....
.....
.....

Time of pruning:
.....
.....
.....
.....
.....
.....

Method of pruning:
.....
.....
.....
.....
.....
.....
.....
.....

Types of pruning:

.....

.....

.....

.....

.....

Light pruning:

.....

.....

.....

.....

.....

Moderate pruning:

.....

.....

.....

.....

.....

Hard pruning:

.....

.....

.....

.....

.....

What is training?

.....

.....

.....

.....

.....

Objectives of training:

.....

.....

.....

.....

.....

Practical No. 11

Objective: To study about lawn establishment and maintenance

Material required: Lawn grass, watering can, manures and fertilizers, raking hoe, lawn mower, grass shear etc.

Exercise: Make a lawn for an area of 10 m x 10 m and write the procedure of different methods

What is a lawn?

.....
.....

Common grasses used for lawn making along with botanical names are:

Common name	Botanical name

Methods of lawn raising:

Method	About it
Seeding	
Plastering	
Dibbling	
Sprinkling	
Turfing	

--	--	--

Practical No. 12

Objective: To design layout of formal and informal gardens

Exercise: Write down the features of different styles of gardens.

Features of formal gardens are:

.....

.....

.....

.....

.....

.....

.....

.....

.....

Examples of formal gardens:

.....

.....

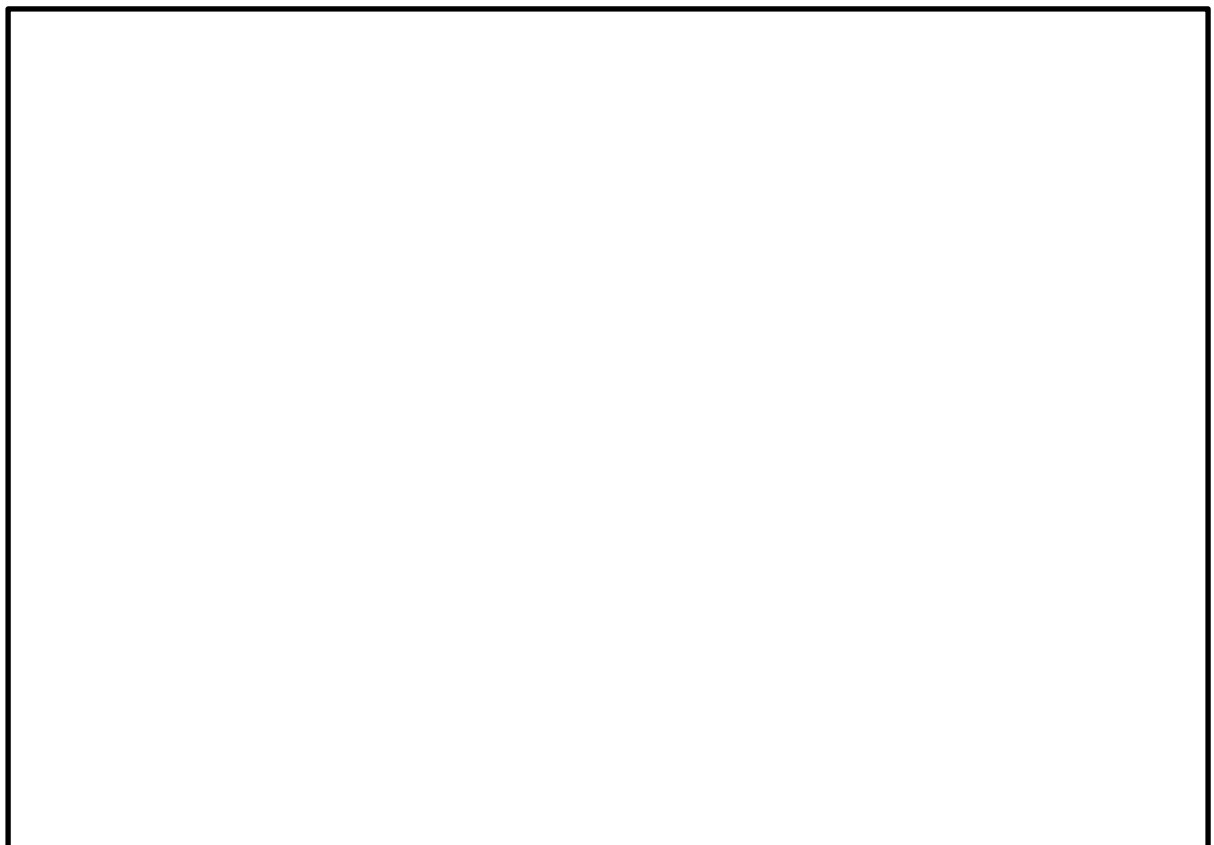
.....

.....

.....

.....

Draw a typical formal garden depicting its main features:



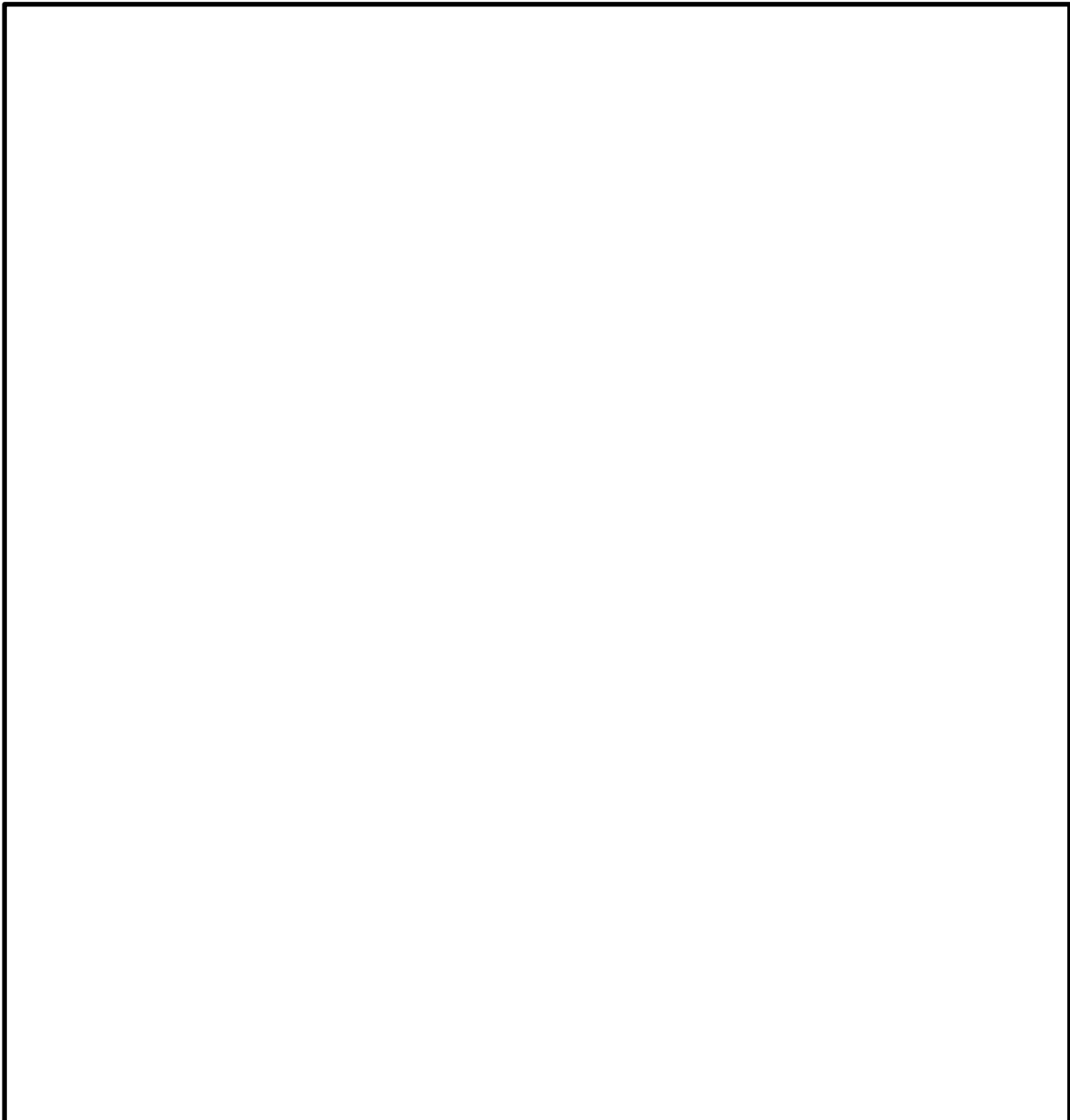
Features of informal gardens are:

.....
.....
.....
.....
.....
.....
.....

Examples of informal garden:

.....
.....

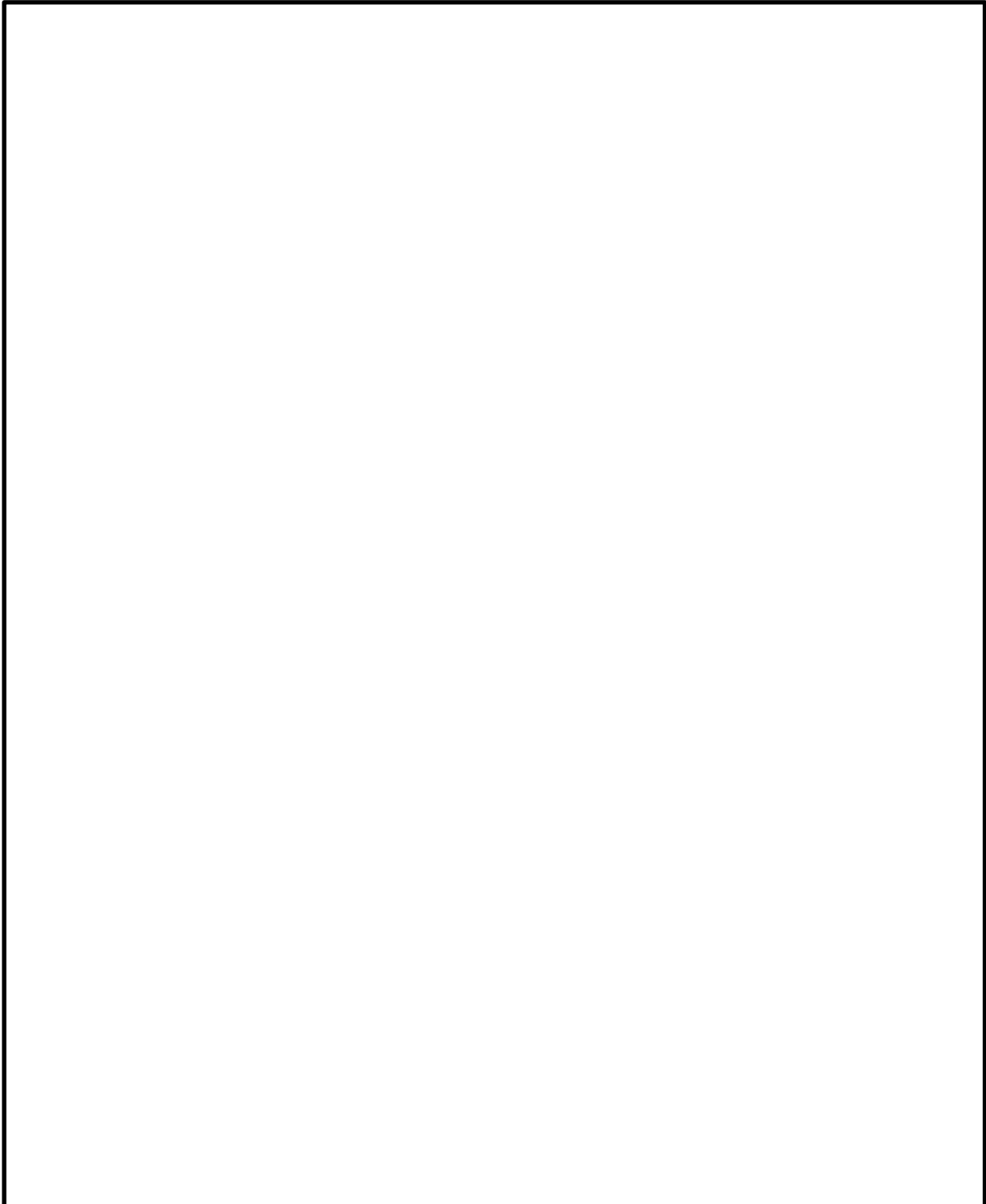
Draw a typical informal garden depicting its main features:



Write the botanical names of the plants suitable for rock garden:

Cacti and succulents	
Ferns	
Shrubs	
Herbaceous plants	
Seasonal flowers	

Diagram of rock garden:



Objective: To study about use of computer software

Exercise: Give description about software used in landscape designing

Components of Computer Aided Design (CAD) system

The two main components of CAD (Computer Aided Design) system are software and hardware.

What is Software?

.....
.....
.....
.....
.....
.....
.....

What is Hardware?

.....
.....
.....
.....
.....
.....

Input devices:

.....
.....
.....
.....
.....
.....

Output devices:

.....
.....
.....
.....
.....
.....

Major steps in designing garden through CAD are:

.....
.....
.....

APPENDIX

CLASSIFICATION OF TREES

Ornamental flowering trees: Grown for the beauty of their showy and ornamental flowers.

Sr. No.	Botanical Name	Common Name	Family	Flower colour and time	Description
1.	<i>Acacia auriculiformis</i>	Earleaf Acacia/ Auri	Fabaceae	Yellow, August-September	An evergreen tree with pendulous branches and phyllodes leaves. The tree is medium sized
2.	<i>Alstonia scholaris</i>	Devil's tree	Apocynaceae	Greenish white, March- April	Tall, spreading and shady tree. Leaves are shiny and dark green. The tree bears small greenish white flowers during Nov –Dec.
3.	<i>Azadirachta indica</i>	Neem	Meliaceae	White, April- May	10-15 m high, good shady tree. It grows successfully on rocky and alkaline soils. Very good shade tree for tropical/sub-tropical areas
4.	<i>Bauhinia purpurea</i>	Orchid tree/ Purple Bauhinia	Fabaceae	Rosy- purple, Nov – Feb.	Medium sized tree suitable for avenue planting,
5.	<i>Bauhinia tomentosa</i>	Yellow Bauhinia/ Orchid tree	Fabaceae	Yellow, April- June	Small tree with drooping branches which bear showy yellow flowers and suitable for growing in gardens.
6.	<i>Bauhinia variegata</i>	Orchid tree / Kachnar	Fabaceae	White-pink, Feb- April	Small sized tree, bear flowers when the tree is leafless. The flowers are edible and used for culinary purpose.
7.	<i>Bombax ceiba</i>	Silk Cotton tree/ Simbal	Malvaceae	Red, orange, Jan- March	Large deciduous tree, stem is straight and undivided. The young stem is covered with sharp prickles. It bears flowers when tree is leafless.
8.	<i>Butea monosperma</i>	Dhak/Palash/ flame of the forest	Fabaceae	Orange red, March- April	Small deciduous tree having irregular branches. It bears showy flowers when the tree is leafless. It is drought resistant tree and can be grown in alkaline soils
9.	<i>Callistemon lanceolatus</i>	Bottle Brush	Myrtaceae	Red, Round the year	Beautiful small tree having weeping habit, the crowded scarlet flowers are borne in spikes almost throughout the year.
10.	<i>Cassia fistula</i>	Indian Laburnum/ Amaltas	Fabaceae	Yellow, May- June	Medium sized shady tree, bears pendulous racemes of large bright yellow flowers, when tree is leafless. It is drought-resistant and can tolerate quite a high salt level.
11.	<i>Cassia javanica</i>	Java Cassia	Fabaceae	Pink, May- June	Medium sized tree with spreading crown, bears clusters of pink flowers with the foliage.
12.	<i>Cassia renigera</i>	Burmese Pink Cassia	Fabaceae	Pink, May- July	Bears flowers in clusters giving appearance of bunches of roses on long branches.
13.	<i>Cassia siamea</i>	Kasod tree	Fabaceae	Yellow, Nov- Feb	Medium sized shady tree. It is drought resistant and can tolerate lot of dust. It is suitable for planting along roadside.
14.	<i>Ceiba speciosa</i>	Silk floss tree	Malvaceae	Pink, July- August	Beautiful tree with a bottle shaped green thorny trunk
15.	<i>Delonix regia</i>	Gulmohar/ Royal Poinciana	Fabaceae	Scarlet red, April- June	Large tree with umbrella like crown and feathery leaves.
16.	<i>Erythrina indica/ E. variegata</i>	Indian Coral tree	Fabaceae	Scarlet, crimson, March- April	Quick growing tree. It bears flowers when the tree is leafless.
17.	<i>Grevillea robusta</i>	Silver oak	Proteaceae	Yellow, April- June	An evergreen tree with a conical crown. The leaves are fern like and silvery from the lower side. It bears coppery yellow flowers in April.
18.	<i>Jacaranda mimosaeifolia</i>	Neeli Gulmohar	Fabaceae	Purple-mauve, March- May	Medium to large sized tree, with feathery bipinnate leaves. Quick growing tree suitable for avenue planting
19.	<i>Kigelia pinnata</i>	Sausage tree	Bignoniaceae	Dark red-maroon, April- May	Large tree with good spreading crown. Sausage like fruits borne on long pendulous stalks can be seen hanging on trees.
20.	<i>Lagerstroemia speciosa/ L. flos-reginae</i>	Giant Crepe Myrtle	Lythraceae	Mauve/ pinkish, April to August	Medium sized deciduous tree. Suitable for avenue planting.
21.	<i>Madhuca indica</i>	Mahua	Sapotaceae	Cream, Feb- March	Fast growing large deciduous tree. The leaves are borne in clusters near the end of the branches and are coppery coloured when young. The flowers are used for making vegetables and wine.
22.	<i>Magnolia champaca</i>	Champak/ Champa	Magnoliaceae	Light yellow, May- September	Medium sized evergreen tree. Bears fragrant flowers
23.	<i>Magnolia grandiflora</i>	Bara champa	Magnoliaceae	White, April- May	Medium sized, evergreen tree with beautiful foliage, large scented white flowers.
24.	<i>Millingtonia</i>	Tree jasmine/	Bignoniaceae	White, April-	Tall evergreen tree which bears sweet scented flowers. The tree is

	<i>hortensis</i>	Indian cork tree		June	quick growing.
25.	<i>Milletia ovalifolia</i>	Molumein rosewood	Fabaceae	Light pink, pink, Feb- March	Medium sized tree. Bears profuse flowers when the tree is leafless
26.	<i>Peltophorum pterocarpum</i>	Yellow Flamboyant	Fabaceae	Yellow, Sept- November	Deciduous tree with bipinnate leaves, erect trunk and suitable for avenue planting
26.	<i>Plumeria acutifolia</i>	Pagoda tree/ Temple tree	Apocynaceae	White, April- November	Dwarf evergreen tree with large green leaves with acute tips.
27.	<i>Plumeria alba</i>	Pagoda tree/ Temple tree	Apocynaceae	White, April- November	Dwarf evergreen tree with large glabrous dark green leaves with round tip, bear fragrant flowers
28.	<i>Plumeria rubra</i>	Red Frangipani	Apocynaceae	Pinkish red, red, April- November	Dwarf deciduous tree with large dark green conical leaves, bear red flowers
29.	<i>Saraca indica</i>	Sita Ashoka	Fabaceae	Bright orange- Red, April – May	Evergreen tree with drooping branches, bear fragrant flowers.
30.	<i>Spathodea campanulata</i>	Fountain tree/ African Tulip tree	Bignoniaceae	Red, Feb-May.	Monotypic genus in the family Bignoniaceae, A medium sized tree. Flower on pressing trickles out water like a fountain.
31.	<i>Tabebuia rosea</i>	Rosy trumpet tree	Bignoniaceae	Deep rose pink, Feb- April	Large tree which bears flowers when leafless.
32.	<i>Tabebuia argentea</i>	Silver trumpet tree	Bignoniaceae	Yellow, March- May	Quick growing tree, bears flowers when leafless. Suitable for avenue planting.
33.	<i>Tecomella undulata</i>	Roheda	Bignoniaceae	Orange, March- April	Dwarf tree, evergreen to semi-deciduous tree suitable for dry and desert areas.

2. Foliage trees: Trees grown for their showy ornamental foliage or for providing shade in garden.

S. No.	Botanical Name	Common Name	Family	Description
1.	<i>Alstonia scholaris</i>	Sat Patia or Devil's tree	Apocynaceae	Bright green leaves borne in cluster of seven. It is good shady tree, used for avenue planting and near parking areas
2.	<i>Araucaria cookii</i>	Monkey Puzzle Tree	Araucariaceae	Symmetrical growth habit. Good for planting as specimen tree. Propagated from seed.
3.	<i>Casuarina equisetifolia</i>	Australian pine tree	Casuarinaceae	Tall columnar tree with needle like leaves, suitable for wind breaks
4.	<i>Cedrus deodara</i>	Cedar pine/ Deodar	Pinaceae	Evergreen pine tree of temperate areas, suitable for roadside planting and timber.
5.	<i>Cupressus sempervirens</i>	Saru	Cupressaceae	Conical tree with thin foliage and suitable for planting in the graveyard.
6.	<i>Dillenia indica</i>	Chalta	Dilleniaceae	Dwarf slow growing tree with shiny green serrated leaves.
7.	<i>Eucalyptus spp.</i>	Blue gum tree/ Safeda	Myrtaceae	Slender trunk, smooth clean few branches lemon scented leaves. Grow rapidly and planted as avenues on marshy land.
8.	<i>Eugenia jambolina</i>	Jamun/ Java plum	Myrtaceae	Tall and spreading with dark green foliage, suitable for providing shade. It bears fruits and attract birds.
9.	<i>Ficus benghalensis</i>	Bohr or Banyan tree	Moraceae	Tall, round shaped foliage tree, usually grown for providing shade in gardens.
10.	<i>Ficus religiosa</i>	Pipal	Moraceae	Tall, evergreen, round shaped tree usually grown for providing shade in gardens.
11.	<i>Ficus elastica</i>	Rubber tree	Moraceae	Evergreen medium size tree, bright shining blackish green leaves, can be used as a specimen tree and as a pot plant.
12.	<i>Juniperus chinensis</i>	Chinese Juniper	Cupressaceae	Conical growth habit and fine needle like thin green leaves, can be planted as pot plant or as specimen.
13.	<i>Melia azedarch</i>	Chinaberry tree/ Drake	Meliaceae	Winter deciduous tree, light green shiny foliage, suitable for plantation as shady tree
14.	<i>Melaleuca bracteata</i>	Golden Bottle brush	Myrtaceae	Tree with pendulous branches, leaves are golden-greenish in colour.
15.	<i>Mimusops elengi</i>	Spanish cherry. Mulsari	Sapotaceae	Slow growing tree with round canopy and dark green foliage, bears scented flowers
16.	<i>Polyalthia longifolia</i>	False Ashok	Annonaceae	Tall evergreen tree with a symmetrical columnar crown, good for screening and roadside planting.
17.	<i>Pinus roxburghii</i>	Chirpine	Pinaceae	Evergreen pine tree grown in hills. It can be grown as specimen tree.
18.	<i>Pongamia pinnata</i>	Pongam tree	Fabaceae	Medium size shady tree with dark green foliage, bears purplish white flowers.
19.	<i>Pterospermum acerifolium</i>	Bayur tree/ Kanak Champa	Malvaceae	Medium sized evergreen tree with beautiful foliage and creamish yellow scented flower which appears from April to June.
20.	<i>Pterygote alata/ Sterculia alata</i>	Buddha coconut	Malvaceae	Tall slow growing tree with broad leaves, less spreading, suitable for planting as avenue tree.
21.	<i>Putranjiva roxburghii</i>	Putrajiva	Putranjivaceae	Large tree with a semi-globular crown dense glossy, foliage, good for avenues.
22.	<i>Terminalia arjuna</i>	Arjun tree	Combretaceae	Large evergreen shady tree. Flowers are not showy. Suitable for planting along roads and in groups for shade.

TREES FOR SPECIFIC CONDITIONS:

Wind resistant trees	<i>Eugenia jambolana, Caesalpinia pulcharima, Peltophorum pterocarpum.</i>
Salt resistant trees	<i>Azadirachta Indica, Acacia sp., Butea monosperma, Azadirachta indica, Bassia latifolia, Eucalyptus citriodora, Phoenix dactylofera and Phyllanthus emblica.</i>
Drought resistant	<i>Butea monosperm, Acacia sp., Albizzia lebbek, Casuaria equisetifolia. Crataeva religiosa.</i>
Wet land trees	<i>Nyctanthes arbortristis, Dillenia indica, Michelia champaca, Saraca indica, Thespesia populnea, Salyx babylonica, Eucalyptus eostata, Guaicum officinalis.</i>
Fast growing Trees	<i>Pongamia glabra, Sesbania grandiflora, Cananqium odoratum, Erithrina Indica, Thespesia populnea, Populus sp., Salix sp., Euclyptus sp., Thuja compacta.</i>
Shade giving trees	<i>Pteropsperum acerifolium, Albizzia lebbek, Pelptophorum, Michelia champaca, Anthocephalus cadamba, Dalbergia sisso, Glyricidia Maculata accer sp., Cornus florida.</i>
Trees tolerant to dust and smoke	<i>Acacia auriculiformis, Alstonia soholaris, Butea monosperma, Ficus Benjamina, F. benghalensis, Madhuca Indica, Pongamia glabra, Ficus religiosa, Terminalia Arjuna, Albizzia llebbek, Bombax ceiba</i>
Trees for noise reduction	<i>Terminalia Arjuna, Alstonia scholaris, Azadirachta Indica, Butea Monosperma, Mangifera indica, Madhuca indica, Juniperus chinesis, Eucalyptus Citradora, Kigelia pinnata</i>

IDENTIFICATION OF SHRUBS

1. **Flowering shrubs:** Shrubs are grown for their beautiful flowers.

S. No.	Botanical Name	Common Name	Family	Flowering time	Identifying characters
1.	<i>Abelia grandiflora</i>	Abelia	Caprifoliaceae	May-June	Grows to a height of 1.5-2m, spreading habit and propagated through cuttings.
2.	<i>Abutilon pictum</i>	Chinese lantern	Malvaceae	Orange-yellow	Short shrub, propagated from seeds and cuttings and prefer partial shade.
3.	<i>Acalypha hispida</i>	Chenille plant/ Cat's tail	Euphorbiaceae	Throughout the year, red	Bushy shrub with dark green foliage and long red coloured fuzzy pendulous inflorescence which looks like cat's tail.
4.	<i>Achania malvaviscus</i>	Sleeping Hibiscus	Malvaceae	Throughout the year, red	Popular shrub used as hedge, easily propagated from cuttings
5.	<i>Asclepias currassavica</i>	Milk weed	Asclepiadaceae	Summer season Orange-yellow	As a specimen shrub, good for border, propagated from seed or cuttings
6.	<i>Barleria cristata</i>	Philippine violet	Acanthaceae	Oct-Dec. Violet blue, pink, white	Small shrub, winter deciduous in nature propagated from seed.
7.	<i>Bauhinia tomentosa</i>	Bell bauhinia	Leguminosae	August-October Sulphur yellow	5-8 m high, winter deciduous shrub, quick growing. Grown for foliage and flower beauty. Propagated from seed.
8.	<i>Bougainvillea spp</i>	Bougainvillea	Nyctaginaceae	Red, yellow, white, purple, pink	Multipurpose shrub, quick growing. Hardy and can be grown under neglected conditions for screening purpose.
9.	<i>Brugmansia suaveolens</i>	Datura	Solanaceae	Pink flowers	Very good landscape plant, prefers partial shade.
10.	<i>Caesalpinia pulcherrima</i>	Peacock flower	Leguminosae	May-Aug. Scarlet, yellow	Medium sized shrub grown for foliage and flower beauty. It is a quick growing shrub suitable for dry areas.
11.	<i>Calliandra brevipes</i>	Pink Powder puff	Leguminosae	Red, pink, white	Medium to tall, evergreen shrub with beautiful foliage.
12.	<i>Camellia japonica</i>	Camellia	Theaceae	April-June Red, Pink	Very good specimen shrub suitable for high elevations.
13.	<i>Carissa carandus</i>	Karonda	Apocynaceae	March-April, white	Hedge plant and can be planted in a large shrubbery.
14.	<i>Cascabela thevetia/ Thevetia peruviana</i>	Pili Kaner	Apocynaceae	Year round, Yellow	Tall evergreen shrubs with shining leaves, for roadside plantation and screening, propagation is from seed.
15.	<i>Cassia biflora</i>	Desert Cassia	Leguminosae	Feb-April Yellow	6-8 ft. in height propagated from seed and air layering, used as specimen shrub.
16.	<i>Cassia glauca</i>	Scrambled egg bush	Leguminosae	Mar-May, Sept. -Nov., Yellow	Tall, evergreen, quick growing shrub suitable for arid areas.
17.	<i>Cestrum diurnum</i>	Din ka Raja	Solanaceae	June-Aug, White	Medium quick growing, evergreen shrub with blue berries.
18.	<i>Cestrum elegans</i>	Pink Cestrum	Solanaceae	Sept-Dec. Purple red	Suitable for temperate climate and high altitudes.
19.	<i>Cestrum nocturnum</i>	Rat ki Rani	Solanaceae	Spring & Rainy season white	5-6 ft high, evergreen, hardy quick growing shrub, propagated from cuttings, fragrant flowers open at night.
20.	<i>Clerodendrum thomsonae</i>	Bleeding heart	Verbenaceae	Rainy season Scarlet with white calyx	Very attractive shrub/climber suitable for tropical areas.
21.	<i>Cotoneaster microphyllus</i>	Rockspray Cotoneaster	Rosaceae	White flowers	Prostrate trailing shrubs, climbs over rocks and suitable for rock gardens.
22.	<i>Cuphea hyssopifolia</i>	False Heather	Lythraceae	July-September blue flowers	Evergreen shrub suitable as good edging plant bearing pinkish purple flowers.

23.	<i>Galphimia gracilis</i>	Golden shower	Malpighiaceae	Jul-Nov. Yellow	Evergreen medium shrub, can be used as hedge. Propagated through seed.
24.	<i>Gardenia jasminoides</i>	Gandhraj	Rubiaceae	March-Sept. White	Evergreen medium shrub. Grown as a specimen shrub, bears sweet scented flowers.
25.	<i>Hamelia patens</i>	Firebush/ humming bird bush	Rubiaceae	Year round Red	Tall shrub. On rockery it can be trained as small bush, grown for the foliage and flower beauty and for screening.
26.	<i>Hamiltonia suaveolens</i>	-	Rubiaceae	Feb-March Lavender	Medium to large shrub 6-8'. Propagated from cutting, used for group plantation.
27.	<i>Hibiscus mutabilis</i>	Changeable Rose	Malvaceae	White to Pink to red	Tall growing, deciduous shrub with large leaves.
28.	<i>Hibiscus rosa-sinensis</i>	China Rose	Malvaceae	Year round White, pink rose, yellow	Evergreen medium sized. Used for making flowering hedge.
29.	<i>Hibiscus syriacus</i>	Rose of Sharon	Malvaceae	Summers, White & Mauve	Deciduous shrub 5-6'. Propagated from cuttings. Good for temperate climatic areas.
30.	<i>Holmskioldia Sanguinea</i>	Cup-n-Saucer	Verbenaceae	Yellow, red	Medium sized shrub. Long branches used for dry decoration.
31.	<i>Ixora coccinea</i>	Jungle geranium	Rubiaceae	Deep scarlet July-Aug	Evergreen specimen shrub. Prefers partial shade for growth.
32.	<i>Ixora parviflora</i>	-do-	Rubiaceae	White, Mar-Apr	Tall evergreen specimen shrub with sweet scented flowers.
33.	<i>Ixora singaporiensis</i>	-do-	Rubiaceae	Pinkish red	Dwarf shrub, used as a specimen bush. Prefers partial shade for growth.
34.	<i>Jacobinia camea</i>	Jacobinia	Acanthaceae	Orange	4-5' evergreen shrub, bears tubular orange flower, grown for making flowering hedge.
35.	<i>Jasminum humile</i>	Peeli chameli	Oleaceae	Feb-Mar, Yellow	Evergreen shrub. Thrives well in poor soil, can be used as climber.
36.	<i>Jasminum sambac</i>	Motia	-do-	March-Sept. White	Dwarf shrub, planted for sweet scented flowers. Propagated by suckers and cuttings.
37.	<i>Lagerstroemia indica</i>	Sawani	Lythraceae	May-Aug Mauve, pink and white	Tall, winter deciduous shrub, Propagated from cuttings.
38.	<i>Lantana sellowiana</i>	Trailing Lantana	Verbenaceae	Year round Pale mauve	Medium shrub, evergreen, good for planting on mounds and rockeries.
39.	<i>Mussaenda frondosa</i>	Mussaenda	Rubiaceae	Summers White sepals	Evergreen shrub. Long white sepals form a part of flowers.
40.	<i>Nerium oleander</i>	Kaner	Apocynaceae	May-Oct White, pink, Red	Evergreen shrub. Suitable for roadside plantation, screening. Variegated varieties are used as specimen plant.
41.	<i>Nyctanthes arbor-tristis</i>	Parijaat/ Har- Shingar	Oleaceae	October- January White with orange peduncle	Tall evergreen shrub, with numerous sweet-scented flowers, propagation is from seed.
42.	<i>Plumbago capensis</i>	Chitra	Plumbaginaceae	Mar.-Oct., White turn light blue	Evergreen shrub, used as ground cover, pot plant or for foundation plantation.
43.	<i>Poinsettia pulcherrima</i>	Christmas Flower	Euphorbiaceae	Dec.-Jan Yellow and Red	Deciduous shrub, 5-6 ft height, terminal leaves look like flowers.
44.	<i>Ruellia simplex</i>	Mexican petunia	Acanthaceae	Spring to summers, Purple, pink, white	Thriving best under semi-shade, suitable for shrubbery and hanging baskets.
45.	<i>Russelia juncea</i>	Fire cracker plant	Scrophulariaceae	June to Aug, Coral red	Dwarf, evergreen shrub, used as foundation plant, bears tube like flowers. Used in bouquet making.
46.	<i>Tabernaemontana coronaria</i>	Pinwheel flower/ Chandni	Apocynaceae	Round the year, white	Tall evergreen shrub with glossy leaves used in shrubbery, specimen shrub, avenue and screening.
47.	<i>Tecoma stans</i>	Yellow trumpet bush	Bignoniaceae	Year round, Golden yellow	Dwarf growing shrub grown in shrubbery or as hedge.
48.	<i>Thunbergia erecta</i>	Purple king's mantle	Acanthaceae	Year round, Dark blue	Medium sized evergreen shrub, used for making flowering hedge.
49.	<i>Volkmeria inermis /Clerodendrum inermi</i>	Forest Jasmine	Verbenaceae	July-Nov. White	Evergreen shrub, good for hedge making, can be trained for topiary making and good for dry areas.

2. Foliage shrubs: These shrubs are grown for their foliage either green or variegated

S. No	Botanical Name	Common Name	Family	Flowering time	Identifying characters
1.	<i>Acalypha wilkensisiana</i>	Acalypha	Euphorbiaceae	-	3-4 ft. in height. It is good for hedge, foundation plantation and pot plant. It prefers partial shade for healthy growth.
2.	<i>Duranta repens</i>	Golden Dewrop	Verbenaceae	May-Jul, Blue	Medium sized, suitable for dry areas, propagated through cuttings. Used for edge & hedge making.
3.	<i>Euonymus japonicus</i>	Privet or	Celastraceae	-	Medium sized shrub, used for hedge making, as pot plant, foliage is

		Japanese spindle			used as cut stem.
4.	<i>Euphorbia cotinifolia</i>	Caribbean copper leaf	Euphorbiaceae	-	Fast growing shrub with reddish foliage, suitable as pot plant, shrubbery and specimen
5.	<i>Excoecaria bicolor</i>	Chinese croton	Euphorbiaceae	-	Attractive leaves, red and green on opposite sides of leaf blade, good shrub for pots.
6.	<i>Ficus benjamina</i>	Weeping fig	Moraceae	-	Shrub with dark green leaves suitable for hedges, specimen and topiary.
7.	<i>Justicia gendarussa</i>	Willow leaved Justicia	Acanthaceae	-	Medium shrub, good for making edges. Can also be grown under partial shade.
8.	<i>Lawsonia inermis</i>	Mehndi	Lythraceae	Creamy white	Medium sized fragrant, quick growing shrub, powder of its leaves used for decorating hand and feet.
9.	<i>Ligustrum ovalifolium</i>	Japanese Privet	Oleaceae	Dull white	It is popular as a hedge plant can be propagated through cuttings.
10.	<i>Malpighia coccigera</i>	Miniature Holly	Malpighiaceae	Throughout the year, White	Evergreen shrub with small dark green spiny leaves. Good for making topiary, hedges, edges and bonsai.
11.	<i>Melaleuca bracteata</i>	Golden bottle brush	Myrtaceae	April – Oct, White	Shrub of weeping habit, most suitable for topiary making, can be propagated from cuttings.
12.	<i>Phyllanthus myrtifolius</i>	Mouse tail plant	Phyllanthaceae	May- Sept., red	Evergreen shrub with small light green leaves borne on drooping branches, producing a dense crown. Suitable for hedges, edges and topiary.
13.	<i>Pseuderanthemum caruthersii</i>	False Eranthemum	Acanthaceae	June- October, White, pink	Medium growing evergreen shrub, with green, dark purple and variegated leaves, suitable as pot plant
14.	<i>Vitex negundo</i>	Nirgundi	Verbenaceae	May-June Lilac	Tall shrub, silvery leaves. Suitable for saline, alkaline soil, drought resistant.
15.	<i>Volkmeria inermis</i> <i>Clerodendrum inermi</i>	Forest Jasmine	Verbenaceae	July-Nov. White	Evergreen shrub, good for hedge making, can be trained for topiary making. Propagated from cuttings and is drought resistant.

IDENTIFICATION OF ANNUALS

1. Winter season Annuals:

Sr. No.	Botanical Name	Common Name	Family	Colour	Description
1.	<i>Acroclium roseum</i>	Paper Flower	Asteraceae	Pink & White	Grown for bedding purpose and as dry flowers for decoration.
2.	<i>Ageratum houstonianum</i>	Floss Flower	Asteraceae	Blue, white or pink	Grown for bedding purpose
3.	<i>Alcea rosea</i>	Hollyhock	Malvaceae	Various colours	Used for screening purpose, background and borders
4.	<i>Antirrhinum majus</i>	Snapdragon	Plantaginaceae	White, yellow pink, rose mauve	Bedding and pots, good cut flower
5.	<i>Arctotis stoechadifolia</i>	African Daisy	Asteraceae	White	Bedding purpose and herbaceous borders
6.	<i>Brachycome iberidifolia</i>	Swan River Daisy	Asteraceae	White, pink and blue	Bedding purpose and herbaceous borders.
7.	<i>Bracteantha viscosa</i>	Sticky paper daisy	Asteraceae	Yellow	Bedding purpose and good dry flower
8.	<i>Bellis perennis</i>	English daily	Asteraceae	White, pink, red	Bedding purpose
9.	<i>Bromus sp.</i>	-	Poaceae	Green to pale	Used as bedding plant and excellent dry flower
10.	<i>Briza maxima</i>	Greater quacking grass	Poaceae	Green to pale	Used as bedding plant and excellent dry flower
11.	<i>Calceolaria herbeohybrida</i>	Lady's purse, slipper flower	Calceolariaceae	Orange, yellow and red	Easy to grow indoors or outdoors in pots or beds. Suitable as potted plant for temperate areas.
12.	<i>Calendula officinalis</i>	Pot marigold	Asteraceae	Yellow, orange	Bedding and pots
13.	<i>Callistephus chinensis</i>	China aster	Asteraceae	White, pink, blue	Bedding and pots, good cut flower
14.	<i>Centaurea cyanus</i>	Corn flower	Asteraceae	-do-	Bedding purpose
15.	<i>Centaurea moschata</i>	Sweet sultan	Asteraceae	Mauve, white, yellow	Bedding purpose and pots, having scented flowers
16.	<i>Erysimum cheiri</i>	Wall flower	Brassicaceae	Yellow burnt orange	Bedding purpose and pots, having scented flowers
17.	<i>Clarkia elegans</i>	Clarkia	Onagraceae	White, rose, pink, purple	Bedding purpose
18.	<i>Coreopsis tinctoria</i>	Plains tickseed	Asteraceae	Yellow	-do-
19.	<i>Coreopsis lanceolata</i>	Lance-leaved coreopsis	Asteraceae	Yellow	-do-
20.	<i>Cosmos bipinnatus</i>	Garden Cosmos	Asteraceae	White, pink, mauve, magenta	Bedding purpose and can be grown throughout the year
21.	<i>Cosmos sulphureus</i>	Sulfur Cosmos	Asteraceae	Yellow	-do-
22.	<i>Consolida ajacis</i>	Larkspur	Ranunculaceae	Blue	Bedding purpose






23.	<i>Dahlia variabilis</i>	Dahlia	Asteraceae	Various colours	Bedding purpose and pots
24.	<i>Dianthus barbatus</i>	Sweet William	Caryophyllaceae	White, pink and red	Bedding purpose and as cut flower, have scented flowers
25.	<i>Dainthus chinensis</i>	Chinese pink	Caryophyllaceae	-do-	Bedding purpose.
26.	<i>Dimorphotheca Sinuate</i>	African daisy	Asteraceae	White	Bedding purpose and pots
27.	<i>Eschscholtzia californica</i>	Californian poppy	Papaveraceae	Yellow and Orange	Medium growing, for bedding purpose
28.	<i>Gazania splendens</i>	Treasure daisy	Asteraceae	Yellow and dark brown	Bedding purpose and pots
29.	<i>Glebionis coronaria</i>	Annual chrysanthemum	Asteraceae	White, yellow	Bedding purpose and good loose flower.
30.	<i>Gypsophila elegans</i>	Annual baby's breath	Caryophyllaceae	White, pink yellow	Bedding purpose, good cut flowers used as fillers.
31.	<i>Helichrysum bracteatum</i>	Straw flower	Asteraceae	Yellow, white, pink	Bedding purpose and good dry flower
32.	<i>Iberis amara</i>	Candytuft	Brassicaceae	White, pink	Grown in pots and for edging of herbaceous border
33.	<i>Lagurus ovatus</i>	Hare's-tail or Bunnytail	Poaceae	Green	Bedding purpose, pots and excellent dry flower
34.	<i>Lathyrus odoratus</i>	Sweet pea	Fabaceae	Various colours	Annual climber with fragrant flowers, suitable for screening and trellises.
35.	<i>Limonium sinuatum</i>	Sea-lavender /Statice	Plumbaginaceae	White, pink, yellow purple	Fairly drought resistant, very good cut flower as filler and as dry flower
36.	<i>Linaria bipartite</i>	Toadflax	Plumbaginaceae	Various colours	Grown in semi-shady places, good for bedding and pots.
37.	<i>Lobularia maritima</i>	Sweet Alyssum	Brassicaceae	White, lilac	Bedding purpose and pot plants
38.	<i>Lupinus hartwegii</i>	Lupin	Fabaceae	Purplish blue	Bedding purpose and as cut flower
39.	<i>Mathiola incana</i>	Stock	Brassicaceae	White, purple, yellow	Bedding purpose and good cut flower
40.	<i>Dorotheanthus bellidiformis</i>	Ice plant	Aizoaceae	Pink, white, yellow	Leaves are fleshy and have small dew like natural eruptions. For edging, pots, hanging baskets, rockery.
41.	<i>Euryops chrysanthemoides</i>	African bush daisy	Asteraceae	Bright yellow	Edging plant and pots
42.	<i>Mimulus tigrinus</i>	Tiger Monkey flower	Phymaceae	yellow with brown blotches	Partially shady places, suitable, good for pots
43.	<i>Moluccella laevis</i>	Bells of Ireland	Lamiaceae	Green like bells	Used in flower arrangements and good dry flower
44.	<i>Nemesia strumosa</i>	Nemesia	Scrophulariaceae	Yellow, red, orange	Bedding and pots
45.	<i>Nigella damascena</i>	Love -in- a - mist	Ranunculaceae	Blue, white, purple	Sunny areas and pods are used as dry flowers
46.	<i>Petunia hybrida</i>	Petunia	Solanaceae	Various colours	Good for pots, hanging baskets and bedding purpose
47.	<i>Phlox drummondii</i>	Drummond's Phlox	Polemoniaceae	Various colours	Dwarf plants are very showy when grown in borders, baskets and pots
48.	<i>Papaver orientale</i>	Common poppy	Papaveraceae	Red	Good for bedding purpose and herbaceous borders
49.	<i>Primula melacoides</i>	Fairy primrose	Primulaceae	Mauve, pink, white	Good for bedding purpose and pots. Suitable for temperate areas.
50.	<i>Salvia splendens</i>	scarlet sage	Lamiaceae	Scarlet, red, white, purple	Easily grown in shady places and rockery, used as bedding plant and in pots
51.	<i>Senecio cruentus</i>	Cineraria	Asteraceae	Various colours	Grown in shady places, good for bedding purpose and pots
52.	<i>Tagetes erecta</i>	African Marigold	Asteraceae	Yellow, orange	Easily grown, good for bedding, pots and commercially grown for loose flowers
53.	<i>Tagetes patula</i>	French Marigold	Asteraceae	Yellow, orange, red	Hardy annual used for bedding purpose, pots and as loose flower.
54.	<i>Torenia fourmieri</i>	Wishbone flower	Linderniaceae	blue, purple, pink, rose and white	blooms abundantly in shady conditions, good for edging and containers
55.	<i>Tropaeolum majus</i>	Nasturtium	Tropaeolaceae	-do-	Mostly grown in rockeries. It has trailing habit, so used as climbers and in hanging baskets.
56.	<i>Verbena hybrida</i>	Verbena	Verbenaceae	Purple, pink, blue, red, white	Good for bedding purpose, pots, hanging baskets, window boxes and rockery.
57.	<i>Viola tricolor var hortensis/ Viola wittrockiana</i>	Pansy	Violaceae	Yellow, blue, red, purple, violet bicolor	Sunny location is preferred, good for bedding and hanging baskets. Flowers resembles with the butterflies

2. Summer and rainy season annuals

Sr. No.	Botanical Name	Common Name	Family	Colour	Remarks
1	<i>Celosia cristata</i>	Cock's comb	Amaranthaceae	Pink,yellow,orange	Very hardy and longer flowering period and makes good crest
2	<i>Celosia plumosa</i>	Plumed cockscomb	Amaranthaceae	do-	Flowers like plume of ostrich. Good for bedding purpose.
3	<i>Amaranthus caudatus</i>	Love-lies-bleeding	Amaranthaceae	Pink & White	Due to variegated leaves, grown in pots for indoor decoration
4	<i>Gaillardia pulchella</i>	Blanket flower	Asteraceae	Yellow, orange	Resist dry conditions,grown as perennial also. Good cut flower
5	<i>Gomphrena globosa</i>	Bachelor's button	Amaranthaceae	Pink, Magenta	Good for dry conditions and used as dry flower.
6	<i>Helianthus annus</i>	Sunflower	Asteraceae	Yellow orange	Grown throughout the year and sown directly from seeds into permanent places
7	<i>Portulaca grandiflora</i>	Moss Rose	Portulacaceae	Various colours	Propagated by cutting, grown in pots, hanging basket, small box.
8	<i>Bassia scoparia/ Kochia scoparia</i>	Summer Cypress	Amaranthaceae	---	Mostly grown for foliage beauty due to uniform, well-shaped and bushy growth.
9	<i>Impatiens balsamina</i>	Balsam	Balsaminaceae	Various colours	Early flowering, short duration, very delicate, needs much care
10	<i>Impatiens walleriana</i>	Impatiens	Balsaminaceae	pink, red or white	Suitable for pots and bedding purpose.
11	<i>Tithonia speciose</i>	Mexican Sunflower	Asteraceae	Orange, scarlet	Sown directly from seeds
12	<i>Catharanthus roseus</i>	Periwinkle	Apocynaceae	Purple, Pink, white	Grown throughout the year
13	<i>Zinnia elegans</i>	Zinnia	Asteraceae	Various colours	Very hardy and grown easily for longer duration

POT PLANTS







Flowering Type: Plants that produce conspicuous flowers are flowering type house plants.

				
<i>Acalypha hispida</i> Family: Euphorbiaceae	<i>Begonia semperflorens</i> Family: Begoniaceae	<i>Heliconia humilis</i> Family: Heliconiaceae	<i>Euphorbia milii</i> Family: Euphorbiaceae	<i>Adenium obesum</i> Family: Euphorbiaceae







Foliage type: Plants having ornamental foliage but inconspicuous flowers.

			
<i>Aglonema commutatum</i> Family: Araceae	<i>Dracaena fragrans</i> Family: Agavaceae	<i>Difffenbachea amoena</i> Family: Araceae	<i>Calathea lietzei</i> Family: Marantaceae
			
<i>Maranta arundinacea 'Variegata'</i> Family: Marantaceae	<i>Epipremnum aureum</i> Family: Araceae	<i>Tradescantia albiflora</i> Family: Commelinaceae	<i>Codiaeum varigatum</i> Family: Euphorbiaceae
			
<i>Acalypha wilkesiana</i> Family: Euphorbiaceae	<i>Pandanus baptistii</i> Family: Pandanaceae	<i>Schefflera arboricola</i> Family: Araliaceae	<i>Excoecaria bicolor</i> Family: Euphorbiaceae





Ferns: Ferns are valued for their beautiful foliage beauty.

		
<i>Adiantum capillus</i> Family: Adiantaceae	<i>Nephrolepis exaltata</i> Family: Oleandraceae	<i>Platycerium bifuratum</i> Family: Polypodiaceae
		
<i>Blechnum gibbum</i> Family: Blechnaceae	<i>Pteris vittata</i> Family: Pteridaceae	<i>Asplenium nidus</i> Family: Aspleniaceae



Palms: Palms have elegant foliage in different forms and patterns.

		
<i>Phoenix canariensis</i>	<i>Rhaps excelsa</i>	<i>Washingtonia filifera</i>
		
<i>Licuala grandis</i>	<i>Caryota mitis</i>	<i>Livistina chinensis</i>










Bromeliads: Bromeliads have colourful leaves in rosette form as well as attractive inflorescence.

			
<i>Aechmea chantinii</i>	<i>Cryptanthus bivittatus</i> 'Pink Starlite'	<i>Neoregelia carolinae</i> 'Tricolor'	<i>Billbergia nutans</i>






Bulbous/ Rhizomatous plants: Bulbous plants include true bulbs but also plants that grow from tubers, corms and rhizomes. These are basically the storage organs.

		
<i>Caladium 'Bleeding Heart'</i> Family: Araceae	<i>Haemanthus multiflorus</i> Family: Amaryllidaceae	<i>Rhoeo discolor</i> Family: Commelinaceae

Succulents: Succulent are plants that are able to store moisture in succulent tissue either in leaves, stems or rootstock.

		
<i>Agave americana parviflora</i> Family: Agavaceae	<i>Furcraea gigantica 'Medio-picta'</i> Family: Agavaceae	<i>Tradescantia sillamontana</i> Family: Commelinaceae
		
<i>Beaucarnea recurvata</i> Family: Agavaceae	<i>Pedilanthus tithymaloides</i> Family: Euphorbiaceae	<i>Kalanchoe blossfeldiana</i> Family: Crassulaceae
		
<i>Sedum morganianum</i> Family: Crassulaceae	<i>Tradescantia sillamontana</i> Family: Commelinaceae	<i>Yucca filamentosa</i> Family: Liliaceae

Juvenile trees: Trees having attractive leaves in juvenile stage are used as house plants.

				
<i>Araucaria cookii</i> Family: Araucariaceae	<i>Cycas circinalis</i> Family: Cycadaceae	<i>Juniperus chinensis</i> Family: Cupressaceae	<i>Ficus benjamina nuda</i> Family: Moraceae	<i>Thuja orientalis</i> Family: Cupressaceae

CARE AND MAINTENANCE OF POT PLANTS

Pot plants require proper care and management throughout the year. Care has to be taken regarding proper:

- Watering
- Disease and insects-pest control
- Manuring
- Proper exposure to light

Keeping plants at the same place for a long period of time, leads to yellowing of leaves and stunted growth. Place should be changed at regular intervals (7-15 days). During summer, house plants should be kept under partial shade.

Watering is done judiciously after adjudging soil moisture regime of the pot. Frequent watering should be done during April-June when plants are in active growth, in comparison to cold season. Over watering may lead to the yellowing of leaves and fungal diseases. Less watering may restrict plant growth. Therefore, frequency of irrigation is to be decided, depending upon the season and type of plant species.

Sunlight

- Indoor plants do not require direct sunlight. But make sure they get at least bright natural light.
- The morning sun is best for potted flowers and vegetables.
- Potted plants should be kept in a cluster to face sun from one side only.

Fertilizers & Manures

- Apply manures like cow dung, bone meal, vermicompost and oil cakes once in two to four weeks.
- Use manure or water-soluble feed each week to 10 days all throughout summer.

Watering & Care

- Sprinkle water twice a day for terrace plants.
- In case of potted plants, allow excess water to run out from the bottom of the pot into a saucer placed below.
- Plants should be pruned occasionally to remove damaged parts and to help fresh growth.

POTTING AND REPOTTING

Procedure of Potting:

- Before use, pots are cleaned and thoroughly rinsed in water or in a solution of one part bleach (Calcium hypochlorite) to nine parts water.
- Cover the drainage holes in the pot with pieces of broken clay pots or coarse gravel so as to allow drainage and hole is not blocked by the compost.
- Next add enough potting compost and place the plant in centre, fill in the space with more compost leaving about ½ inch below the rim of the pot.
- Pots are watered with help of watering can till compost gets fully saturated.
- Immediately after potting, the pots are placed in shade to enable the roots to get established.

Procedure of Re-potting

- When a pot plant is to be repotted with the ball of earth intact in a larger pot, this operation can be undertaken almost any time of the year as the roots do not get disturbed during the process.
- When the ball of earth is to be disturbed or broken because of poor growth and old compost getting exhausted, the transplanting should be undertaken in a season when the roots are in active growth.
- For repotting, hold the plant and soil ball with one hand, invert it and lightly tap the edge of the pot on a hard surface such as a table or countertop. If the soil mass is completely surrounded by a mass of roots, the plant needs to be repotted.
- Plant roots are trimmed with help of secateurs and repotted in similar way as followed in potting.

POTTING



Uplift the existing plant from pot



Fill the new pot with growing media

Prune the big roots



Re-potted plant

Make hole and cover with pebbles/net

TRAINING AND PRUNING

Training is a practice in which tree growth is directed into a desired shape and form. Training young trees is essential for proper tree development. It is better to direct tree growth with training than to correct it with pruning. The goal of tree training is to direct tree growth and minimize cutting. Pruning is the proper and judicious removal of plant parts such as shoots, spurs, leaves, roots or nipping away of terminal parts etc. to correct or maintain tree structure and increase its usefulness.

STYLES OF GARDENS

FORMAL GARDENS:

- A formal garden is laid out in a symmetrical or a geometrical pattern like with square and rectangular shapes.
- The outline of the garden as well as the outline of different parts like paths, flower beds, hedges and lawns are of geometrical shape.
- If there is a plant on the left-hand side of a straight road, a similar plant must be planted at the opposite place on the right-hand side i.e., both are mirror image of each other.
- In such gardens everything is planted in straight lines.
- The roads cut at right angles.
- It has a sort of enclosure or boundary.
- The arrangement of trees and shrubs are in geometrical shape and kept in shape by trimming and training. The flower beds, borders, and shrubbery are arranged in geometrically designed beds.
- Trimmed formal hedges, Cypress, Ashoka trees, and topiary are typical features of a formal garden.

Examples: Mughal, Persian, Moorish garden of Spain, Italian and French styles



INFORMAL GARDEN:

- In an informal garden, the whole design looks informal, as the plans and the features are arranged in a natural way and represents natural beauty. The idea behind this design is to imitate nature.
- It is contrast to formal style. Plan is asymmetrical according to the land available for making the garden.
- Smooth curvaceous out lines are more appropriate.
- Water bodies are more irregular in shape.
- Hillock are made, water falls provided, lakes and islands, cascades, rocks, and a rustic hutment are provided to create rural effect.
- Appropriately grouped plants provide living quality and they are not trimmed. **Example:** English and Japanese gardens



FREESTYLE GARDEN:

- In this style of garden design, the good points of both formal, informal as well as naturalistic features are aesthetically mixed so as to create a picturesque scene.
- This style can, however, be adopted to suit the needs of almost all situations.

WILD GARDEN:

- A comparatively recent style of gardening, namely, "Wild Garden" was given by William Robinson in the last decade of the nineteenth century. His main idea was to naturalize plants in shrubberies.
- Grass should remain unmowed, as in nature, and few bulbous plants should be grown scattered in the grass to create a wild scenery.
- The passage to the garden should be opened in the woodland and the trees, shrubs and bulbous plants should be planted among the forest flora.
- The idea also allows the creepers to grow over the trees naturally imitating those of the forests.



SUNKEN GARDEN

It is formed taking advantage of a natural depression. The depression is made into different tiers over which ground covers, edges, flower beds and small herbs may be grown. At the center of the depression, a pond or pool is formed to grow water plants. A sunken garden can be laid out in an already existing depression of land or a portion of the garden may be modified to lay out such a garden. Since a sunken ground is likely to collect water, adequate drainage arrangement should be made. The simplest method will be to have one or two drainage outlets and connect them to the sewage system. It is not advisable to have a sunken garden in a very heavy soil because of the drainage problem. If the garden is likely to be flooded rapidly, special arrangements may have to be made to drain out the excess of water accumulated. Some drainage materials such as stones, rubbles, etc., may be placed below the surface of the sunken garden at a depth of about 1 metre from the surface. The thickness of these materials may be about 60 cm. Steps should be taken to prevent the surface run-off water falling into the sunken garden.



TERRACE GARDEN

It is a garden arranged in various levels or terraces. Terrace gardening involves land raising and construction of steps, ramps, walls and paved paths as well as planting of lawn grasses and other plants. It is desirable to have plants on the terrace but it should be restricted to the edges so that the middle is left open for circulation. Since such gardens are mainly for relaxation, they should provide both sunny and shady areas. Terrace gardens must offer a fine year-round view of the entire garden. Addition of sculptured rocks, a small lily pond with a fountain and water plants will lend visual enrichment.



ROCK GARDEN: Rock garden is also called as rockery.

- Rocks should be of local origin, porous, and have a weathered look.
- Stones of uniform size having diameter around 60 cm should be selected or even larger which can be handled without much difficulty.
- A mound is created by putting a good garden loam or a mixture of soil, sand, FYM and leaf mould in equal proportion.
- This compost is spread only on top 15-45 cm of the top layers of rockery, the sub-soil should be well drained and have the property to absorb sufficient water.
- Before placing and setting the rocks, the mound should be allowed to settle for some time or firmed by beating, if needed.
- The stones are placed in slightly slanting position gently leaning backwards, not forwards, so that rain water flows towards



plant roots.

- Pockets are created in between stones varying in size from 15-60 cm across. These pockets are created in such a manner that it looks natural and compost inside is not washed away with rain water.
- The rockery is planted with grown up and well-established plants. Dense planting should be avoided rather planting is done at wide distance as with time plants will fill up the space as they grow.

CONSERVATORY

It is also commonly called as fern house. These are certain ornamental plants with beautiful foliage (or) flowers (or) both which cannot thrive in the open, exposed to direct, sun (or) wind. Such plants can be grown in conservatory (or) green house where in required shade, humidity and temperature are provided. By having a small pool inside the conservatory is rendered cool and humid. Shade is provided by growing a creeper over the roof which will not shut out light completely. Ferns, Anthurium, Dieffenbachia, Peperomia are some of the examples of plants which are completely grown inside a greenhouse / conservatory. In India a conservatory is also known as Fernery in olden days, ferns occupied predominant position in such houses.