MODEL ANSWER

MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE
SEMESTER END EXAMINATION
B.Sc.(Hort)

Semester : III (New) Academic Year : 2018-2019
Course No : H/FL-231 Course Title : Commercial Floriculture
Credits : 3(2+1)
Day & Date : Time: Total Marks :80

Note :1. Solve ANY EIGHT questions from SECTION "A".
2.All questions from SECTION "B" are compulsory.
3. All questions carry equal marks.
4. Draw neat diagrams wherever necessary.

SECTION "A"

Q.1. Describe in short scope and importance of commercial floriculture in India? (4 marks).

Scope

There is a good scope for commercial floriculture. The important factors which decide the scope for Commercial Floriculture are Soil, Climate, labour. Transport and Market.

All most all big cities are developing very speedily to accommodate this fast growing population, cement concrete, jungle is also developing at the some rate and thus peoples are now realizing the importance of open space, parks and garden for relaxation, peace of mind, recreation and unpolluted air. Thus, to meet out all these problems bio-aesthetic planning is essential, which runs hand in hand with town planning.

In modem life floriculture garden in the country yard is an integral part of the modern life and thus ornamental plants have found a pride of place in home gardening.

As far as flower trade is concerned i.e. for cut flowers and loose flowers, it is growing very well in our state because these cut flowers are used for vase decoration and now-a-days there is a craze for indoor decoration. As far as loose flowers are concerned these are mainly used for preparation of gajara, veni, garland and bouquets and thus demand of flowers for this purpose is unending.

Thus, taking into consideration the different points i.e. bio-aesthetic planning, floral garden, indoor decoration, social functions and religious functions the demand for floricultural plants is increasing day by day and to meet out the same there is a good scope for growing and raising of Ornamental or Floricultural plants. When Flower Trade is concerned; different flowers like Rose, Chrysanthemum, Gladiolus, Tuberose are demanded in the market as cut flowers. While Aster, Gaillardia, Marigold, Chrysanthemum, Jasmines, Tager, Nerium as loose flowers.

Importance **(4 marks)**

Flowers have been considered as the symbol of grace and elegance and a feast for our eyes. They are used on all religious festival occasions. Flowers are given as a birthday presents, wedding gifts or while meeting sick people and even at funerals. Most Hindu ladies adhere their; hair style with flowers i.e. *Gajara* and *Veni* and it is one of the important floral ornament which will and grace to their beauty. All the people irrespective of their origin, race, and cadre love flowers.

Generally flowers are offered by devotees in Temple, Gurudwara, Church and Masjids- Flowers are used as a floral decoration. Even dried flowers are also used in flower craft or arrangement of garlands and bouquets are prepared and offered to welcome the dignitaries. When cut flowers are used for vase decoration, that will be a marvelous piece of indoor decoration.

Importance of flowers is not restricted up to the beautification, decoration or preparation of Gajra, Garland, Veni or Bouquets but also have the industrial importance too. Some flowers like Rose, Jasmines, Tuberose, Kevda, Bakul are used for extraction of essential oils which is base for preparation of perfumes, scents or attar. From rose Gulkand, Rose water etc. products are also prepared

Q.2, Write in short about production technology of Rose on given points.

i)Soil and climate **(2 marks)**

Rich, porus and well drained,rich in organic content with good drainage. The ideal environment for rose growing should have a minimum temperature of 15^0C and a maximum of 28^0C. with the existing light conditions in the tropics, optimum day temp. on sunny days should be 25-30 ^{0}C and on days with cloudy sky 18-20 ^{0}C the night temp should be 15-18^{0}C

ii)Propagation **(2 marks)**

Roses are propagated both by seeds and vegetative methods, like cutting, layering,budding and grafting

Budding is the most popular method for multiplying roses.

iii)Cultivars **(2 marks)**

Hybrid perpetual	Frau karl Druschki, General Jacqueminot
Hybrid Teas	Abbaye de Cluney, Atida,Anastasia, American Dream, Baccardi, Bellissima, Big purple, blue Moon
Floribunda	Americas choise, Angelica, Belinda, Champagner , Charisma, Confetti,Courtosie
Polantha	Emmeloord, Margo Koster, May Wonder, Ornage triumph, Paul crampbell
Miniatures	Arizona sunset, Bit O'Gold, Black Jade, Copper Sunset,Fairy Tale
Climbers	Auriel Dombasle, Dubline Bay, Gold Bunny, Dynamite

iv) Harvesting and yield **(2 marks)**

The stage of development at which flowers should be cut depends on the purpose for which it is harvested. Roses for cut flowers, destined for local market, are cut when outer petals start curling outwards, whicle for distant markets they

are harvested at tight bud stage, when the bud shows full colour but the petals have not yet started unfolding.

The number of cut flowers produced per plant/year varies from 15-20 in different cultivars

Q.3. Discuss the process of marketing of flowers. **(8 marks)**

Flowers are marketed either in domestic market or export market. For domestic market the restrictions of quarantine and other international standards can be excluded. The middlemen is the problem in India .

For export market the income is more but the quality must confirm the international standards. GAP and quarantine is must. The transport and cold storage and facilities at different locations are necessary. Packaging and grading is done as per the demand of country.

Q.4. Describe in short the importance of protected cultivation with its advantages and Disadvantages

Advantages **(4 marks)**

Protected cultivation has become popular in India because of the assured income form small areas. Production can be managed throughout the year Production of high value crops. **(4 marks)**

Advantages	Disadvantages
Production of high value crops Cultivation of flowers ,vegetables and fruits Crops give high yield Easy to control pests and diseases. Cultivation of exotic crops.	High initial cost of the project Costly inputs Export channels needs to be developed

Q.5. Explain in brief the production of Chrysanthemum on given points.

i)Soil and climate **(2 marks)**

Chrysanthemum is herbaceous perennial plant having soft and succulent stem. It produces fibrous root system hence it requires well drained soil. Water logged or ill drained soil may cause adverse effect on plant growth.pH of soil should be between 6.5 to 7.0.

Chrysanthemum is a short day plant. For its vegetative growth it requires long Jay with bright sunlight and high temperature ranging from 20 to 27 °C. For bud formation and flowering it requires short day and low temperature ranging from 10 to 27 'C. During growing period if the atmospheric humidity remains 70 to 90 per cent, it helps in vigorous vegetative growth of plant.

ii)Propagation **(2 marks)**

Chrysanthemum is propagated by two methods:

i) Root suckers and

ii) Terminal stem cutting.

Propagation by cutting is preferred over suckers because cutting produces the neat and sturdy plant whereas the plant raised through suckers are shaggy and haggard (Wild looking).For commercial crops, it is generally propagated by suckers, while for pot culture it is generally preferred by terminal stem cutting.

iii)Planting **(2 marks)**

In Maharashtra State generally, the planting of Chrysanthemum is done during April - May and some varieties are planted during August also. April -

May plantings start flowers in the month of September- October. While August planted in the month of December. Before the planting field should be prepared by. ploughing and harrowing to which 15 to 20 tones of FYM be added. Rooted suckers or cuttings are planted on the ridges and furrows at the spacing's of 30 x 30 cm and 30 x 45 cm irrigated immediately.

iv) Harvesting and yield. **(2 marks)**

Usually Chrysanthemum takes 5 to 6 months from planting to flowering and thus flowers are available from October to December. Fully opened flowers are harvested without their stalk (Loose flowers) preferably in the morning. Harvested flowers are packed in bamboo basket and then send to market.

10 to 12 tonnes flowers / hectare, 40 to 120 quintals flowers / ha.

Q.6. What a. e the reasons of post harvest deterioration of flowers and how it can be avoided?.

Reasons **(4 marks)**

Food depletion
Bacterial and fungal infection
Maturation and ageing
Wilting
Bruising and injuries
High temperature
Moisture stress.

Precaution **(4 marks)**

Supply of food (sugar)
Careful handling
Proper packaging

Q.7. Discuss in brief methods of dehydration of flowers

(8 marks)

Air drying
Embedded drying in room-i) Embedding ii) Sun drying
Oven drying
Press drying
Quick drying

Q.8. Write in short production technology of Dahalia on following points

i) Soil and climate **(2 marks)**

Dahlias grow well in rich and porous soil. Well drained, deep fertile, pH 6.5, open and sunny place, cool atmosphere free from frost is required.

ii) Varieties **(2 marks)**

Gint Decorative : African quean purple to crimson. Alvas Suprome-Yellow.
Large decorative : Alden Galaxy Rod, Arthur Hambly –rosy lavender.
Medium decorative : April Dawn-Pink and white blend.
Small decorative : Burtardotunch-Yellow bends.
Miniature decorative : Cristine Hammett-agricot.

iii) Propagation **(2 marks)**

Dahlias are propagated form seeds, tuberous roots and cuttings. Multiplication by grafting is also possible. Propagation through moristem culture may be used for producing virus-free plants.

(2 marks)

iv) Planting

Dahlias are generally planted in Sept-Oct. In the plains,and in April in the hills. The planting distance will vary according to the type i. c. about 75 cm in case of tail, large flowered types, 60 cm for medium sized plants and 30 to 45 cm in case of dwarf cultivars.

Q.9. ~~Write down nature of damage and control measures for following diseases and Pests.~~ Discuss the poodn technology of Gladiolus. o

Following points.

i) Soil and climate (2 marks)

Gladiolus sis grown in light to medium type of soils; well drained soils are good. pH 6.0-6.5. Gladiolus requires full exposure to sunlight for better crop, cool temperature 18-25 ^{0}C

ii) Propagation (2 marks)

Corms, size 3.0-5.0 cm, depth of planting 5 cm, spacing 30 x 15 cm

iii) Nutritional requirement (2 marks)

20 tons of FYM/ha at the time of field preparation; 300:200:200 kg NPK/ha (N four splits). The dose may differ region wise

iv) Harvesting and yield (2 marks)

Spikes are harvested when the basal two florets are showing colors and about to open. Yield 1.25 lakh spikes/ha

Q.10. Describe in short production technology of Jasmine with respect to

i) Soil and climate (2 marks)

It requires well drained, porous and fertile soil. It clay soil, though the vegetative growth is vigorous, flowering is poor. Jasmines cannot tolerate water logged soil. It requires hot and dry climate for higher yield. Yield of the flowers is directly related with temperature and dry condition. Under high temperature and high humidity plant grows vigorously and bushes are less productive.

ii)Varieties (2 marks)

1. Mogra:Motia, Madanban, Ramban, Ramnnathpurum Gundumulli, Bela, Rai
2. Jui :Co-1, Mullai, Parimuiii, Large round, Short point
3. Chemali or Jai : Co-1, Thimmapurum, Coimbatore, Pink pin.

iii)Propagation and planting (2 marks)

Jasmines are generally propagated by cutting of almost mature wood and also by layers. The best time for propagation is rainy season.

A jasmine plantation remains productive for 10-15 years. So land should be prepared thoroughly by addition of manures. The planting is usually done in rainy season.

Mogra	:75 cm x 1 meter or 1.2 meter x 1.2 meter 2x2 meter
Jai Jui	:1.8 meter x 1.8 meter
Kunda	:1.8 meter x 1.8 meter

iv)Harvesting and yield (2 marks)

Jasminum species start flowering from first year of planting but commercial yield starts after second year.

Jui and Mogra flowers are harvested from March to June while Jai flowers, almost throughout the year.

Mogra is having a very short post harvest life. The unopened-fully developed flowers buds are picked very early in the morning and transported within 2 to 3 hours, to the market.

For Gajara and Veni fully developed unopened buds are picked while for extraction of oil fully opened flowers are picked.

Yield:

Mogra	:	8000 - 10,000 kg flowers / ha 50 to 80 quintals flowers /ha
Chameli	:	11,000 kg flowers/ha
Jui	:	10,000 kg flowers/ha.

SECTION "B"

Q.11. Match the pairs **(8 marks)**

"A"	"B"
1.Bird of paradise	h) *Strelitzia reginae*
2.Evergreen tree	g) *Michelia champaka*
3.Blanket flower	f) Gaillardia
4.*Callistephus chinensis*	e) China aster
5.Tuberose	d) Amaryllidaceae
6.Maximum acreage	c) Marigold
7.Asteraceae	b) *Zinnia elegans*
8. Acanthaceae	a) Crossandra

Q.12.Fill in the blanks **(8 marks)**

9. Spike is the term related to **Gladiolus**
10. *Dianthus caryophyllus* is the Botanical name of **Carnation.**
11. Storage temperature for Anthurium is **13^{o}C**
12. **APEDA** is the nodal organization for promotion of agriculture exports including flowers
13. American beauty is a variety of **China aster**
14. Common name of Tuberose is **Nishigandha/ Rajanigandha/ Sword Lilly**
15. Cattleya and cymbidium are the types of **Orchid**
16. Picasso is the popular cultivar of **Canna**

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