

Model Answer
MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE
SEMESTER END EXAMINATION
B.Sc. (Agri.)

SEMESTER : III (NEW)
COURSE NO : HORT-232

ACADEMIC YEAR: 2015-16

TITLE: Production Technology of Vegetables &
Floricultures.

CREDIT : 2 (1+1)

TOTAL MARKS : 40

DAY & DATE :

TIME :

- 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 diagram wherever necessary.

SECTION 'A'

Q.1 Write cultivation practices of tomato on following points. (Each carries 1 M)

a. Soil & Climate	Well drained well fertile, organic matter rich soil suitable. pH of soil should be 6.0 to 7.0. Sandy loam clay loam suitable for growing crop. Tomato is a warm season crop and requires relatively long season to produce a profitable crop. Ideal average temperature 21°C to 24°C (day) temperature. Development of red colour in tomato fruit takes place upto 25°C. Temperature above 35°C lycopene is destroyed and red colour development does not take place.
b Sowing & Transplanting	Tomato 400 g / ha. seed is sufficient. In tomato seedlings are first raised on nursery bed. To obtain healthy, stocky seedlings, seeds should be sown on raised beds. Tomato crop should be transplanted in well prepared soil. Normally tomato seedlings are transplanted on ridges opened at a spacing of 60 cm x 60 cm; 60 cm x 45 cm for determinate type and 90 cm x 90 cm for indeterminate type.
c. Harvesting	Tomato fruits can be harvested at different stages of maturity depending upon the purpose for which fruits are harvested. For a longer distance marketing fully grown tomato fruits but not totally ripened can be harvested. For a shorter distance marketing, where losses due to transport are less, fully developed and red ripe tomatoes are harvested. However, for processing industries fully developed red ripe tomato are harvested. Different stages of harvesting are followed viz, mature green, breaker stage when just colour is changing, pink and red ripe.
d. Nutritional & medicinal value.	Tomato is popular because it supplies vitamin C and adds variety of colour and flavours to the food. Tomato is also rich in medicinal value. The pulp and juice are digestible. It is said to be useful in cancer of mouth, sour mouth etc. It is one of the richest vegetables which keeps our stomach and intestine in good condition. Rich source of mineral particularly potassium.

Classification of rose and flowering time.

Q.2 Write the cultivation practice of Rose on following points.

(Each carries 1 M)

a. Soil & Climate	Well fertile soil with good drainage. Loamy soil having organic matter is ideal. pH range 6.0-6.5. Moderate temperature bright sun shine and high light intensity are good for flower production. Good light throughout the year. Temp. range 15-28°C. Frost during flowering is harmful.
b. Varieties	Gladiator, Homibhabha, First red, Grand Gala, Versilla Rakta Gandha, Mercedes and Sonia Meind.
c. Propagation & Planting method	Seed, Budding, cutting. Commercially propagated by budding. <i>Rosa indica</i> root stock. 16-18 month plant used for root stock. Planted in onset of monsoon. Spacing: Hybrid tea rose 60 X 75 cm, FLoribanda & Polyantha 60 X 60 cm and Miniature 30 x 45 cm.
d. Harvesting.	As general rule red and pink cultivar are harvested at a stage when first two petals are beginning to unfold. In yellow colour slightly earlier. Loose flower used for garlands & worship. For cut flower the flower stem should be little more than what is required. The general is observed by two to five leaf let leaves to remain below the cut.

Q.3 Enlist garden type. Describe mughal garden

Enlist garden type	1. Formal garden: Persian garden, French garden, Italian garden & Mughal garden. 2. Informal garden : English garden & Japanese garden	1 Marks
Mughal garden	Mughal garden Garden laid out Mughal emperors Similar to Center Asia and persian garden. Babar (1494-1531) was first ruler introduce this style. Garden feature describe in short a. Site & Design b. Walls & Gates c. Terrace d. Running water e. Baradari. f. Tomb & mosque g. Tree & Flower	3 Marks

Q.4 Write cultivation practices of water melon on following points.

(Each carries 1 M)

a. Botanical Name & Family	<i>Citrullus lanatus</i> Fam.- Cucurbitaceae
b. Soil & Climate	The soil should be well drained and should have ample of organic matter. Soil pH 6.5 – 7.0 . Sandy loam and alluvial soil good for water melon. It required hot dry climate. It can not with stand frost or low temperatures. Annual temperature -24- 27°C. Higher temperature are beneficial for fruit ripening.
c. Nutrient management	Well rotten FYM at the rate of 15-20 t/ha. Apply fertilizers N 80: P ₂ O ₅ 60: K ₂ O 60 Kg/ha. Half dose of nitrogen and full dose of P & K apply at time of planting and remaining half dose of Nitrogen 25-30 days of after planting.
d. Harvesting	In watermelon maturity is judged by following factors : I) Dull sound when fruits are thumped, II) Withering of tendril III) Ground spot changes to yellow and IV) Rind of fruits yields to pressure.

Q.5 Describe the cultivation practice of gladiolus on following points.

a. Soil & Climate	It is vital good gladiolus culture that soil should be well drained and good water holding capacity. Sandy loam, Clay loam suitable. Heavy soil with mix sand to drain excess water. pH range between 6.0 – 7.0. Climate: Plant growth most active at temp between 18°C to 25°C. While growth is retarded below 7°C and above 30°C. Generally winter climate prefer.	(Each carries 1 M)
b. Propagation & Planting method	Gladiolus propagated seeds, corms & cormels. Commercially propagated by only through corms. Before planting land ploughing done to obtain best flower. Sowing at depth of 7-10 cm. Spacing- 25 x 25 cm.	
c. Variety	Friendship, Hunting song, Peter Pears, Spic & Span, American beauty, Agni Rekha, Aarti, Apsara, Basant Bahar, Dew drop.	
d. Harvesting:	Spikes should be harvested in the tight bud stage with 2-3 leaves and when one to five flower florets are showing colour. Harvesting should be done afternoon preferably towards the evening when flowers spike are turgid. Harvesting at high temperature avoided.	

Q.6. Enlist different classification of vegetables. Explain details of based on botanical & method of culture.

Classification of vegetables as follow :	<ol style="list-style-type: none"> 1. Based on botanical group 2. Based on hardness 3. Based on method of culture 4. Based on part used 5. Based on lime requirement 6. Based on soil reaction, 7. Based on life cycle 8. Based on season growth 	1 Marks
1. Based on botanical group-	<p>In botanical classification of vegetable based on similarity or dissimilarity in their morphological features. All vegetables crops belong to subcommunity spermatophyte, which is further divided into angiospermae. Class Dicotyledoneae and monocotyledoneae.</p> <p>Monocotyledoneae- Family- 1 Alliaceae, 2 Dioscoreaceae 3 liliceae 4. Gramineae</p> <p>Dicotyledoneae- Family- 1. Amranthaceae, 2. Cruciferae 3. Chenopidaceae 4. Convolvulaceae 5. Cucurbitaceae 6. Leguminosae 7. Malvaceae 8. Solanaceae.</p>	1.5 marks

2. Based on method of culture-	This method classified according to practice of cultivation & climatic requirements. The crop requiring similar cultural practices are grouped together. This classification avoid unnecessarily repetition of package of practices. It is much practical important for farmers and horticulturist. The grouped structure according to this method are as under.	1.5 marks
	Perennial crop-Asparagus, pointed gourd	
	Peas & beans- Pea, cow pea, cluster bean	
	Salad crop- Celery, Baby corn, lettuce.	
	Root crop- Radish, Carrot	
	Bulb crop- Onion, garlic	
	Leafy vegetables- Coriander, Fenugreek, Palak.	
	Okra- Okra	
	Cucurbits- Cucumber, melons, pumpkins, bittergourds	
	Solanaceous crop- Tomato, brinjal, chilli	
	Tuber crop- Potato, Sweet potato	
	Cole crop- Cabbage, cauliflower, sprouting broccoli	

Q.7. Write short notes on

a) Tea garden -	<p>This garden need atmosphere of familiar so need fencing with wooden gate. Need space 200 sq. meter. Tea garden divided into outer garden & inner garden.</p> <p>The outer garden is comparatively narrow area with waiting place. Wash basin . Stepping stone to inner garden. Inner garden contain tea house. Five person accommodate. Tree planting separated outer & inner garden. Deciduous tree for outer garden. Evergreen tree inner garden.</p>	2 Marks
b) Write physiological disorder of tomato (any two)	<p>Puffiness, sunscald, cracking are some of the physiological disorders observed in tomato.</p> <p>These are caused by low soil moisture, and other environmental factors. Low soil moisture, high or low temperature causes puffiness, whereas, high temperature causes sunscald.</p>	2 Marks

Q.8. Discuss the cultivation practices of okra on following points.

(Each carries 1 Mark)

a. Important & use	It green tender fruits are used as vegetable and are generally marketed in the fresh state. It is also canned or dehydrated Okra fruits are used in various ways. It is cooked, fried in oil with necessary ingredients. The roots and stems of okra plants are used for clearing the cane juice from which <i>gur</i> or jaggery is prepared. Matured fruits and stems containing fibres are used in paper industry.
b. Varieties	Pusa Sawani, Parbhani Kranti, Pusa Makhmali, Arka Anamika.
c. Sowing method	Seed rate depends upto method of planting, season and spacing. Higher seed rate of 18-20 kg is required if it is drilled and also in summer season as it is sown in a closer spacing. In rainy season about 8-10 kg seed/ha is sufficient.
d. Harvesting & Yield	The tender fruits or 7-10 cm long should be harvested every alternate day. Frequent pickings promote fruit development and hence yield increases. Follow harvesting of edible fruits 7-8 days after pollination. Average bhendi crop yield varies from 60 to 75 quintals per hectare in summer and 100-125 quintals during rainy season.

Q.9 Write a short note on.

a) Pinching & Disbudding in chrysanthemum	Pinching- Removal growing top to encourage bushy growth & lateral branches. Disbudding- Removal of all bud except 1 or 2 for quality flowers.	2 Marks
b) Greening in potato	During tuber development when tuber exposed directly to sunlight it becomes green spot developed. Because due sun light solanin alkaloids is formed in tubers. Control- Earthing up to potato prevent greening in tuber	2 Marks

Q.10 Write the cultivation practices of marigold on following points. (Each carries 1 Mark)

a. Botanical name:	<i>Tagetes erecta</i> (African marigold), <i>Tagetes patula</i> , (French marigold)
b. Propagation & Planting method	Seed. Annual season Sown in Kharif season. Seed sown in nursery bed after About a month transferred to main field. Spacing : 30X 30 cm or 25X 25 cm
c. Harvesting	2 to 3 moth after sowing of seed start flowering
d. Uses	Marigold used for garlands, worship purpose. It also used for preparation bouquet. Some time whole plant with flower used for decoration.. Dwarf type used for hanging basket, window box, edging of lawan-flower beds, etc.

SECTION B

Q.11 Do as directed.

4 Marks

1) i. Name of pigment responsible for red colour in tomato & chilli.
Ans- Tomato- Lycopene Chilli- Capsanthin2) ii. List out main feature of English garden.
Ans- Lawn, flower bed, herbaceous perennial & annual, flowering annual.3) iii. Write two crops of hardy vegetables.
Ans- Cauliflower, Onion, Carrot, Garlic (other name also mention in reference books)4) iv. Name of two flowering shrub.
Ans- Hibiscus, Ixora. (other name also mention in reference books)

Q12. Define following terms.

4 Marks -

- 1) a. Axis- An imaginary line in any garden around which the garden is created striking a balance
- 2) b. Formal garden- A formal garden is laid out in a symmetrical or geometrical pattern
- 3) c. Bolting - A premature initiation of seed stalk is called as bolting.
- 4) d. Olericulture - A study production technology of vegetable crop called as olericulture.