

Horticulture Sample Question Paper 2022 Term II

Max. Time: 3 Hours

Max. Marks: 30

Section A

Answer any 03 questions out of the given 04 questions $1 \times 3 = 3$

1. Write the one important quality that makes an entrepreneur successful.

Ans:

- (1) Initiative
- (2) Willingness to take risks
- (3) Ability to learn from experience
- (4) Motivation
- (5) Self-confidence
- (6) Hard work
- (7) Decision-making ability

2. Rahul focuses on developing solutions that benefit the entire society. Which type of entrepreneur is Rahul?

Ans: Social

3. Greenhouse gas emissions can be minimised by,

Ans: Use of energy-efficient vehicles and Compressed Natural Gas (CNG)

4. Type of farming that avoids the use of synthetic pesticides in crop plants.

Ans: Organic farming

Answer any 01 question out of the given 02 questions $1 \times 2 = 2$

5. Define organic farming. Discuss different ways of green jobs in agriculture.

Ans: Organic farming: Organic farming is the process of growing plants and crops in an environmentally friendly way. It prevents the use of synthetic chemicals/pesticides. It prevents water pollution and soil contamination as no chemical is added to the soil.

Different ways of green jobs in agriculture: Farmers' cooperatives are one of the most effective means of reducing the risk in agriculture and strengthening the livelihoods of small and marginal farmers.

Organic farming, integrated pest management, farm mechanisation and agro-tourism also provide job opportunities to youths. The Krishi Vigyan Kendras (KVKs) can be utilised to provide support like technology dissemination, training awareness to the local youth and farmers for collection, storage and reuse of agro-waste.

6. What should be the qualities of a successful entrepreneur?

Ans:

- (1) Initiative: An entrepreneur must be able to initiate action and take advantage of an opportunity.
- (2) Willingness to take risks: This deters individuals from taking up risks and starting a business.
- (3) Ability to learn from experience: The person must have the ability to learn from experience.
- (4) Motivation: Once you get motivated to do something, you will not rest until you complete it.
- (5) Self-confidence: A person needs to have confidence in oneself.
- (6) Hard work: The entrepreneur has to be vigilant to identify the problems and solve them as early as possible.
- (7) Decision-making ability: The person must be capable of making suitable and timely decisions.

Section B

Answer any 05 questions out of the given 07 questions $1 \times 5 = 5$

7. Write the names of two important CAD software used in landscaping 1

Ans: AutoCAD and ArchiCAD

8. CAD is simply defined as ____.

Ans: Design and drafting using CAD software.

9. Which is a major turf grass species for sport fields, lawns, parks, golf courses, and general utility turf?

Ans: Bermuda grass / Doob grass (*Cynodon dactylon*)

10. In indoor plants, light intensity received in foot-candles (indirect light exposures).

Ans: 100 to 300

11. Which is the main operating system for CAD systems?

Ans: WINDOWS

12. Major pest attacks the roots of lawn grass, and the lawn looks wilted and drying in patches at the site of attack.

Ans: Termite

13. Indoor plant used for indirect light conditions (west window).

Ans: Aloe, Vase Plant, Urn Plant, Queen's-tears, Earth-star, Coleus, Geranium, Air plants, Bird-of-paradise, Holiday cactuses, English Ivy, Bloodleaf, Croton, etc.

Answer any 03 questions out of the given 05 questions $2 \times 3 = 6$

14. Enlist the factors affecting the growth of indoor plants.

Ans:

- (1) Water
- (2) Light
- (3) Nutrients
- (4) Temperature
- (5) Fertiliser for Nutrients

15. Describe the propagation methods in rose cultivation.

Ans: Rose is mainly propagated by cuttings and budding. T-budding is considered the best for the propagation of roses.

- **Cuttings:** Matured cuttings of 20cm –30cm long are cut, and the leaves are removed. The cuttings are then dipped in a solution of IBA to promote root growth. These cuttings are used for planting as well as for raising rootstocks for budding.
- **Budding and Grafting:** it is the operation in which a bud or a part of tissue of one plant is transferred to another plant by various proper techniques. The main objective is to enable one to utilise the vigorous root system of another for proper combination using the best characters of both the variety, which gives the root system is called 'Stock', and the cultivar grafted upon the stock is called 'Scion'.

16. Write the climate and soil requirements for tuberose cultivation.

Ans: It requires a warm and humid climate, but flowering is profuse under a mild climate. If the temperature increases beyond 40° C or falls below the spike length as well as also the quality of the blossom is also badly affected. A temperature range from 20° C to 32° C is considered best for tuberose cultivation.

Sandy and well-drained loamy soils are considered good for tuberose cultivation. Soil should be rich in organic matter. The soil PH should be 6.5 to 7.5. Before cultivation, soil testing is strongly recommended.

17. Why is protected cultivation important in flower crop cultivation?

Ans:

- 1. Production of disease-free transplants
- 2. Produce flowers all year round.
- 3. Higher crop yield and productivity
- 4. Promotes quality and high-value produce
- 5. Minimises the use of pesticides

- 6. Efficient use of water
- 7. Better management of biotic and abiotic stresses

18. Describe the fan-shaped flower arrangement style.

Ans: It is one of the commonly used classic floral arrangement styles that are used by various florists around the world. Here, the flowers and leaves are arranged in the shape of a fan. We can easily use the same or different types of flowers for the arrangement, and the empty spaces are filled with the help of fillers.

Answer any 02 questions out of the given 04 questions $3 \times 2 = 6$

19. What is pre-cooling? Write the advantages of pre-cooling in the post-harvest handling of flower crops.

Ans: Pre-cooling is the removal of heat from harvested flowers. This is done by different methods like hydro-cooling, forced air cooling, room cooling and vacuum cooling, etc. to bring down the temperature from 20-30°C to 1°C in a relatively short period.

Advantages of pre-cooling:

- 1. Flowers can be stored for a longer period at a low temperature.
- 2. Lowering the required workload of a cold storage
- 3. It restricts and minimises respiratory activity, thereby conserving the weight of the produce and enzymatic degradation of the harvested produce; thus preventing softening, water loss and wilting
- 4. Preventing microbial growth, such as bacteria and fungi, thereby decreasing the rate of decay
- 5. Decreasing the rate of ethylene production, thus increasing shelf-life

20. Write the importance of flower drying with the important value-added products of dry flowers.

Ans: Importance of flower drying:

Dry flowers have good demand both in the Indian and international markets. From India, it is being exported to countries like the USA, Japan and Europe. India stands first in dry flower export owing to the availability of a variety of plants.

They are widely used to make handmade paper, lampshades, candle holders, jute bags, photo frames, boxes, books, wall quilts, topiary, cards and several gifts. The use of dry flowers in the making of these products enhances the appearance and beauty of these products.

Value-added products from dry flowers:

- (1) Dry flower arrangements
- (2) Book Marks
- (3) Greeting cards
- (4) Candles decorated with Dried flowers
- (5) Paper bag

- (6) Floral jewellery
- (7) Wall scenery
- (8) Pine cone arrangement
- (9) Pot Pourri
- (10) Skeletonised leaves
- (11) Paper weight
- (12) Dry arrangement using dried fruits of indigenous plants
- (13) Essential oils

21. Describe pinching, de-shooting, and disbudding in chrysanthemum cultivation.

Ans:

- Pinching: Pinching the soft growth at 3-5 leaf stage (after 7-8 days) to produce many lateral stems in spray chrysanthemum.
- Disbudding: Removal of excess flower buds is done 7 weeks after planting to improve the flower size.
- De-shooting: Retain only 4-5 shoots in standard and 8-12 shoots in spray cultivars, and others are removed from plants

22. Write the names of three important cultivars of Gerbera for protected cultivation.

Ans:

- Red: Red Bull, Ruby Red, Zingaro, Miracle, Yanara, Savannah, Stanza
- Yellow: Supernova, Imperial, Dana-ellen, Piton
- Pink: Rosalin, Salvador, Pink Elegance, Essence, Prime-rose, Intense
- Orange: Dune, Sunset, Sun way, Goliath
- White/cream: Snow-Flake, Balance, Sylvester, Vital, Shimmer, Dalma, Artist, White House
- Peach: Aida, Foske

Section C (Competency-Based Questions)

Answer any 02 questions out of the given 03 questions $2 \times 4 = 8$

23. Describe in detail about different flower drying methods along with their advantages.

Ans: Air drying: Air drying flowers is one of the easiest methods of preservation and gives plants a crisp look that lasts for years. Air-dried flowers make a fabulous decoration by themselves, but when they are dry, they make more beautiful and exotic flower arrangements. This is commonly referred to as the “hang and dry” method. It is the oldest and easiest drying technique. No special equipment is needed. The stems of flowers and their foliage are tied and hung upside down. The rooms should be warm, dark and dry with good air circulation. The flowers are hung upside down so that the stems remain straight. If they are hung with the right side up, they would bend over, and the result would be dried flowers with distorted stems.

Water drying: In water drying, the leaves are stripped off and the flower stems placed in five centimetres of water, then placed in a warm place, out of direct sunlight. The water is absorbed and evaporates as the flower dries. The best way to dry hydrangea flowers is by water drying.

Press drying: One of the most popular methods for drying flowers is to put them under pressure, to remove the moisture while leaving the colour of the flowers and structure intact. There are several ways to apply pressure to flowers. The easiest method is to place them in heavy books and allow them to dry. Flower presses can also be used.

Unglazed paper, such as newsprint, is best for pressing. Pressed flowers are especially suitable for flower pictures, as well as decoration on note paper, place cards and many other items.

Drying by embedding in desiccants: A desiccant is simply a substance with a high affinity for water, which can be used as a drying agent. Embedding the flowers in a granular, desiccating material is probably the most commonly used method, and many consider it the best all-around method. Several materials are used as drying agents.

Most well-known are silica gel and borax, but clean, dry sand can also be used. Usually, an airtight container is used; the flower heads are placed in the drying mixture face up, and very carefully covered with the mixture. The container must be kept closed during the drying process. After 4-14 days, depending on the thickness of the flower, the flower will be dry.

Glycerin drying: In this method, moisture in a flower or foliage is replaced with glycerin and water. The flower is preserved and not dried. Dried materials (whole bunches or single leaves) retain their natural shape and flexibility. They last indefinitely and can be dusted or even wiped with a damp cloth without risk owing to the leathery texture of leaves.

Microwave oven Drying: Microwave drying is quick and relatively simple. It takes only a few minutes and provides dried flowers that look fresher and more colourful than those obtained by other methods. Flowers with thick petals, like magnolia, are not suitable for drying in a microwave. Since flowers vary in moisture content, texture and density, care should be taken to use the same-sized flowers from one species at a time. It has been found that many flowers held almost true to life colour and form using this process. Brightly coloured flowers are best to dry. Flowers such as lilies, roses, violets, zinnias, and dahlias work well with this process.

Freeze drying: Freeze drying (technically known as “lyophilisation”) is the process of lowering the temperature of an object and then using a vacuum to extract all the moisture from the item. It is a state-of-the-art technique and the most effective method for flower preservation today. It is an innovative vacuum process that takes approximately four weeks, depending on the flower. Freeze-dried flowers go through a process in which water is removed as vapour directly from ice,

without passing through the liquid state. This process is called sublimation and requires reduced pressure to occur. All other drying methods use evaporation. In other words, water is removed as vapour from liquid water with heated air. The freeze-drying machine drops the temperature to a -20 degrees F, then it slowly returns the freeze-dried flowers to room temperature over four weeks. This slow preservation process allows the freeze-dried flowers to retain their original form, while the colours become enriched.

24. What are the different methods to improve the post-harvest life and quality of cut flowers? Describe in detail.

Ans: Method to improve the post-harvest life and quality of cut flowers:

- 1. Pre-cooling: Pre-cooling is done to remove field heat from the produce to reduce flower temperature quickly. Cool temperature extends flower life by lowering respiration and transpiration rate and water loss, and also reducing ethylene production.
- 2. Bunching and grading: The graded stems are made into bundles of 20 each and tied loosely with a rubber band. The bud should be wrapped with 2-ply soft corrugated paper, white or brown, and tied loosely with a rubber band to secure the bud in position. The wrapping paper should project at least 2-3 cm above the bunch to protect the bud.
- 3. Pulsing: It refers to a pre-shipment treatment given to the flowers for a short period by the growers or shippers with high concentrations of 434 certain chemicals. The main ingredient of various pulsing solutions is sucrose, which is used higher concentration than in preservative formulations. Sucrose undoubtedly serves as a respiratory substrate and, to a certain extent, prevents desiccation and probably replaces the depleted natural carbohydrates and eliminates the breakdown of the other organic compounds.
- 4. Cold Storage (temperatures 0 to 2.2°C) Flowers are stored in cold storage to provide maximum storage life of the crop and to minimise crop damage from chilling, freezing or high temperature injuries and water loss from the crop.
- 5. Packing and transport of the flowers: The principle of packing is to keep the flowers for a long time and retain quality by lowering the rate of transpiration and cell division during transportation and storage. The ideal packing should be air-tight, moisture-proof and strong enough to withstand handling, transport and stacking. The stems should be tightly held in the boxes so that they are not subjected to jerky movements during transport.

25. Write the protected cultivation of carnation on the following heads:

- (a) Propagation**
- (b) Planting time**
- (c) Nutrition**
- (d) Pinching**

Ans:

- (a) Propagation: Carnation (*D. caryophyllus*) for cut flowers is multiplied through cuttings. There are annual carnations that are multiplied by seeds. These annual carnations are suitable as potted ornamental plants. *D. chinensis* and *D. barbatus* are multiplied through seeds.
- (b) Planting time: Planting can be done in different spacings. Normally, 30-45 plants per m² are considered to be ideal. The different spacing followed based on the branching habit of the plant is 15 x 8cm, 15 x 10cm, 15 x 15cm and 15 x 20cm. In case information is lacking about the plant habit, 15 x 20cm spacing can be conveniently followed. Alternate planting in adjacent rows is beneficial in terms of reduced incidence of disease.
- (c) Nutrition: For the first three weeks after planting, the plant does not require any fertiliser. Nitrogen, Phosphorus and Potash are 30:20:30 g per m² per year. A basal dose of 20:20:10g/ m² is given at the time of planting. Remaining fertiliser is applied in an equally distributed dosage over.
- (d) Pinching: When the plant attains six nodes, the first pinch is given. This is referred to as 'single pinch'. This would give rise to six laterals in a 'one and a half pinch'; 2-3 of these lateral shoots are pinched again. For the 'double pinch', all the lateral shoots are pinched off. The ideal time for pinching is morning.

BioSmartNotes