Q. 1 CHOOSE THE CORRECT ANSWER. (10.0)

1) Fruit which is not peeled before canning is
   a. Mango      c. Pineapple
   b. Cherry     d. Apple

2) Pectin requirement is measured by
   a. Jellimeter   c. Hygrometer
   b. Refractometer d. Salometer

3) Which of the following fruit type is selected for making jelly
   a. Ripe    c. Unripe
   b. Mature   d. Over ripe

4) "Methylene Blue" is used as an indicator for estimation of
   a. Acidity   b. Sugars
c. Total Solids d. Vitamins

5) Processed product in which fruit pieces are suspended is called as
   a. Jam      c. Pickle
   b. Preserve d. Marmalade

6) Which of the following fruit use for the cider preparation?
   a. Jamun     c. Aonla
   b. Phalsa    d. All of them

7) Indicator use for the estimation of acidity is ______
   a. Methylene blue
   b. Thymal blue
   c. Phenolphthlelin
   d. Methylene Red

8) Which of the following fruit canned after halving?
   a. Litchi     c. Strawberry
   b. Peach     d. Mango

9) Who describe method of canning of food for the first time?
   a. Peter Durand
   b. Thomas Saddington
   c. Nicholas Appert
   d. Gay Lussac

10) Sugar act as preservative by ______
    a. Osmosis
    b. True Poison
    c. Both
    d. None

11) What is the end point temperature for jam preparation?
    a. 68 °C
    b. 100 °C
    c. 105 °C
    d. 121 °C

12) Which of the following occurs due to improper sealing of can?
    a. Swell
    b. Flat Sour
    c. Springer
    d. Leaker

13) The term "Apperizing" is used for
    a. Syruping
    b. Sterilization
    c. Canning
    d. Dehydration

14) Acidic fruits can easily be sterilized at a temperature of
    a. 88 °C
    b. 100 °C
    c. 112 °C
    d. 116 °C

15) In jelly preparation, pectin act as
    a. Preservative
    b. Stabilizer
    c. Buffers
    d. Flavouring agent

16) Potassium Metabisulphite is available in form of
    a. Solid
    b. Gas
    c. Liquid
    d. Any form

17) Which of the following fruit gives highest calories per unit area
    a. Apple
    b. Papaya
    c. Mango
    d. Banana

18) Crystal formation in jelly is due to
    a. Excess of sugar
    b. Less cooling
    c. Both
    d. None

19) National pickle of India is made from....
    a. Mango
    b. Jack fruit
    c. Lime
    d. Mixed vegetable

20) Fruits and vegetables are referred as
    a. Staple Food
    b. Nutritive Food
    c. Protective Food
    d. Energetic Food
Q. 2 WRITE SHORT NOTE (ANY TWO) (10.0)
1) Class – II Preservatives
2) Problems in Jam
3) Classification of beverages according to FPO Specifications
4) Class – I Preservatives

Q. 3 GIVE THE ANSWERS IN SHORT (ANY FIVE) (10.0)
1) Why citric acid is used for preservation of food?
2) Why fruits are not blanched?
3) Why naturally coloured juices are not preserved by SO₂?
4) Why sugar is used as preservative?
5) Why exhausting is done during canning process?
6) Why KMS is not used in metal container?
7) Why NaB is not used for lime juice preservation?

Q. 4 DRAW THE COMPLETE FLOW CHART FOR THE PREPARATION OF (10.0)
FOLLOWING PRODUCTS (ANY TWO)
1) Jam
2) Mango Pulp
3) Aonla Syrup
4) Lemon Cordial

Q. 5 Mr. Ahuja required 500 bottles of Guava nectar of 180 ml pack, how do you fulfill the requirement? (TSS of Guava pulp is 9% and Acidity is 0.4%)

OR

Q. 5 Dr. Thomas needed 185 bottles of pineapple squash (750 ml Pack) for his shop. Fulfill the order of Dr. Thomas. (TSS of Pineapple juice 11% and Acidity 0.48%)

**********************************
Q.1 Fill in the blanks.

1. Seeds of mango, jackfruit, citrus, etc. cannot be stored for longer period after extraction from fruit and loss viability on drying and known as __________ type of seeds.

2. In mango nursery, the most common and serious disorder is __________.

3. __________ is most commonly used hand tools in nursery.

4. In epicotyl grafting, the seedlings used as rootstock for grafting are approximately _____ days old.

5. Generally, foliar spray of urea was done at a concentration of __________ % to provide nitrogen in nursery plants.

6. The technical name of insecticide available in granular form and used to control nematodes is __________.

7. The Bordeaux mixture is prepared by mixing two chemicals viz. __________ and __________.

8. The most commonly used chemical for bacterial diseases is __________.

9. Mango mother block is necessary to produce mango grafts by __________ method.

Q.2 Write True or False for following.

1. For softwood grafting in mango, the rootstock should be 30 days old. __________

2. Hybrid Papaya plants are commercially propagated by tissue culture. __________

3. In air-layering, the rooting occurs from the bottom cut. __________

4. Coco peat is most commonly used media for air layering. __________

5. True-to-type plants of polyembryonic mango varieties can be obtained from seeds. __________

6. Coco peat is most commonly used media in seedling trays. __________

7. Grafted plants generally remain smaller than seedling trees. __________

8. Epicotyl grafting was developed & commercialised in Gujarat. __________

9. Nowadays, earthen pots are most widely used container in nursery. __________

10. Polytunnels can be used to decrease humidity. __________

Q.3 Define/Explain the following (Any four)

1. Nursery

2. Grafting

3. Polyembryonic seed

4. Micro propagation

5. Plant growth regulators

Q.4 Differentiate following (Any two)

1. Epicotyl grafting in mango V/s Inarch grafting in mango


3. Grafted fruit tree V/s Seedling fruit tree
Q.5 Describe in detail the step wise process.

Epicotyl grafting in mango.

Or

Propagation of pomegranate from cuttings.

Q.6 Write short notes on following (Any three)

1. Enlist essential criteria of mother block for fruit plant nursery. To prepare mother block on 0.5 hectare land (spacing 2.0m x 1.0m), calculate number of grafts required, type of grafts to be used, source of grafts, cost of grafts and total cost of establishment of mother block.

2. Enlist climate control structures of nursery and give advantages and disadvantages of each structure.

3. Enlist types of containers used in nursery with advantages and disadvantages of each type of container.

4. Enlist different types of media and give advantages and disadvantages.

Q.7 Write in short (Any five)

1. Explain different types of seed treatments. Give seed treatment and precautions to be taken for mango, guava, custard apple, and citrus seeds before sowing.

2. Give examples of polyembryonic mango varieties. Write advantages of polyembryony in mango.


4. Which growth regulator is commonly used for rooting of cuttings? Calculate quantity to prepare 500ml solution of 1500ppm concentration.

5. Enlist major insect-pests seen in nursery and give their control measures with name of pesticides and their doses per 10 litre water.

6. Enlist major diseases seen in nursery and give their control measures with name of chemicals and their doses per 10 litre water.

Q.8 Select appropriate option and match the pair.

<table>
<thead>
<tr>
<th>Karambola</th>
<th>Nematode control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sphagnum moss</td>
<td>Reduce transpiration from scion</td>
</tr>
<tr>
<td>Carbendazim</td>
<td>Air layering not successful</td>
</tr>
<tr>
<td>Polythene bags</td>
<td>High content of Iron oxides</td>
</tr>
<tr>
<td>COC</td>
<td>Dehydrated acid bog plants</td>
</tr>
<tr>
<td>Pro-trays</td>
<td>High Phenol content</td>
</tr>
<tr>
<td>Polytubes</td>
<td>Do not retain shape</td>
</tr>
<tr>
<td>Furadon 3G</td>
<td>Contact fungicide</td>
</tr>
<tr>
<td>Red soil</td>
<td>Cocopeat</td>
</tr>
<tr>
<td>Cocopeat</td>
<td>Systemic fungicide</td>
</tr>
</tbody>
</table>

****************************************************
Q1 Fill in the Blanks 
1. Stem break observed in gerbera is due to ________________.
2. A bunch of gerbera contain ____________ flowers.
3. ___________ practice in rose is followed to develop large bud size while ___________ practice provides compactness to the flower bud.
4. In Chemical soil sterilization, soil is treated with ___________ solution.
5. ___________ °C temperature and ___________% humidity is ideal for gerbera growing.
6. First bending in rose is also known as ___________.
7. Rose plants are prone to ________ disease during monsoon and ________ during winter.

Q2 State weather the following statements are True or False, and correct it. 
1. Gerbera plant should be deeply inserted in the media while planting to avoid any damage.
2. Rose cut flowers should be stored at 2°C temperature.
3. 15 flowers are accommodated in single bunch of rose.
4. Gerbera are commercially propagated by suckers.
5. Gerbera starts flowering in about 5 weeks after planting.

Q3 Give scientific classification of rose, gerbera, carnation, chrysanthemum and limonium.

Q4 Give production technology of gerbera in detail.

Q5 Name five different coloured varieties each of Rose and gerbera

Q6 Write short note on following (Any three) 
1. Bending in rose with diagram. 
2. Physiological disorder of gerbera. 
3. Pinching in carnation with diagram. 
Q. 1 CHOOSE THE CORRECT ANSWER. (10.0)
1) "Flame Peeling" is used for
2) In fruit canning and pickling salt act as an/a
3) Ethylene in cold storage is removed by
   a) UV lights       b) Low pressure      c) Ventilation       d) All of above
4) Which of the following chemical is used for controlling sprouting of onion?
   a) Ethylene       b) GA3       c) MH       d) All of these
5) Solidity is maturity index for......
   a) Melons    b) Tuber crops  c) Cole Crops  d) All of above
6) Tenderometer is used to measure the maturity of
   a) Beans    b) Peas       c) Gourds  d) None
7) Which is the non-climacteric vegetables?
   a) Watermelon    b) Cucumber      d) Muskmelon       d) Tomato
8) Lye solution is prepared by
9) For canning purpose tomato is harvested at
   a. Immature Stage  b. Fully ripe  c. Mature Stage  d. Half ripe Stage
10) 'Black Neck' is related to the
11) Which among the following is temporary method of preservation
    a. Dehydration    b. Freezing      c. Fermentation   d. Pickling
12) Which among the following is temporary method of preservation
    a. Dehydration    b. Freezing      c. Fermentation   d. Pickling
13) In carrot, commercially peeling is done by
    a. Lye peeling    b. Hand peeling  c. Steam Peeling  d. Mechanical peeling
14) Packing can not _______ quality.
    a. Refresh       b. Maintain  c. Improve  d. Preserve
15) Which of the following is used to remove field heat vegetables immediately after harvesting?
16) Commonly used sprout suppressant in potato in India is...
    a) MH     b) Cycoceel  c) Alar  d) All
17) Ethylene was discovered by
    a) Genc    b) Lachance  c) Linnaeus  d) None
18) Vacuum cooling is mostly used for...
    a) Tuber crops  b) Cole Crops  c) Leafy vegetables  d) Bulb
19) When did the fruit canning on a commercial scale introduce?
    a. 1807 A.D.  b. 1810 A.D.  c. 1817 A.D.  d. 1804 A.D.
20) In which year Thomas Saddington had described the method of canning?
    a. 1807 A.D.  b. 1810 A.D.  c. 1804 A.D.  d. 1814 A.D.
Q. 2 WRITE SHORT NOTE (ANY TWO) (10.0)
1) Spoilage in Pickles and its Remedies.
2) Role of Drying in food processing.
3) Importance of processing.
4) Spoilage in dried products.

Q. 3 GIVE THE ANSWERS IN SHORT (ANY FIVE) (10.0)
1) Why the sterilization is not possible in food products?
2) Why KMS is not used for ketchup preservation?
3) Why dried products keep air tightly packed?
4) Why sugar/brine used for canning of vegetables?
5) Why pasteurization is done in the food product?
6) Why potato required higher temperature for processing than tomato?
7) Glass bottle should not be cooled in water followed by processing, why?

Q. 4 DRAW THE COMPLETE FLOW CHART FOR THE PREPARATION OF (10.0)
FOLLOWING PRODUCTS (ANY TWO)
1) Tomato Puree
2) Pickle
3) Turmeric Powder
4) Onion Dehydration

Q. 5 WRITE DOWN THE COMPLETE RECIPE FOR THE FOLLOWING PRODUCTS (10.0)
(ANY TWO)
1) Pickle
2) Aloe vera Juice
3) Ketchup

********************
Q. 1 What is media? Explain the different types of media in short. Write the characteristics of good media (07.00)

OR

Q.1 Explain in brief Damping off disease with its control measures (05.00)

Q.2 Briefly explain importance of nursery (05.00)

Q.3 Explain in detail different types of beds used in seedlings preparation (05.00)

Q.4 Write short note (ANY - FOUR) (08.00)

1. Benefits of plug nursery
2. Formalin treatment of soil sterilization
3. Soil preparation
4. Seed treatment
5. Hardening in Vegetable seedlings

Q-5 Answer in short (ANY - FIVE) (10.00)

1. Why width of nursery beds is not more than 1-1.5 m?
2. Enlist the vegetable crops which are require nursery
3. Enlist the different type of containers used for raising seedlings
4. Why thinning is essential in vegetable seedling?
5. Control measures for leaf curl disease in seedling
6. Control measures for ants in seedling

(P.T.O)
Q.6 Write the True and False (05.00)
(1) Purple brinjal is denoted as Surti Ravaiya
(2) Damping off is caused by Mites.
(3) Furadon 3G is applied as foliar spray in vegetable seedling
(4) Seed should be treated before sowing with Thiram/Captan @ 2-3g per kg seed
(5) Broadcasting method of seed sowing is more suitable for vegetable seedling as line sowing method

Q.7 Match the following (10.00)

(1) Tomato          • (a) 200 m^2
(2) Brinjal          (b) 4-5 days
(3) Onion            (c) 8-10 days
(4) Early cauliflower (d) 3-4 days
(5) Lattuce          (e) 3 days
(6) Broccoli         (f) 75-100 m^2
(7) Knolkholl        (g) 500 m^2
(8) Brussels sprouts (h) 3-5 days
(9) Chinese Cabbage  (i) 150-200 m^2
(10) Sorrel          (j) 150 m^2

###################################
NAVSARI AGRICULTURAL UNIVERSITY
7th SEMESTER B.Sc. ((Hons.) Horticulture) END EXAMINATION (REGULAR)
SUB: Course No. HWE.7.2.2 TITLE: PRODUCTION OF HI-VALUED VEGETABLE CROPS

DATE: 05/01/2015 MARKS: 50
DAY : MONDAY TIME: 14.30 TO 16.30

Q.1 Fill in the blanks. (10.0)
1. ___________ is responsible for bitterness in all cucurbits.
2. Cucumber is a ___________ pollinated crops.
3. 200 ppm NAA = ___________ quantity of NAA in 1 litre of water.
4. Under NVPH ___________ type of cucumber variety is grown.
5. For pollination in tomato during rainy season _______ ppm of _______ is used for flower dipping treatment.
6. Fruit cracking is due to _______ element deficiency.
7. Generally _______ type of tomato variety is used for growing in greenhouse.
8. In cucumber cultivation ___________ is the mandatory operation under greenhouse.
9. Commercially _______ training system is used for capsicum cultivation in greenhouse.

Q.2 Stands for (10.0)
1. RH
2. TSS
3. ELP
4. BER
5. RKN
6. TP
7. MIS
8. CCG
9. NBPGPR
10. EC

Q.3 Match the pair (5.0)
Group A
1. Cucumber
2. Tomato
3. Capsicum
4. Muskmelon
5. Fenugreek
6. Formaldehyde
7. EC
8. Staminate
9. Powdery mildew
10. H₂O₂

Group B
1. Wettable sulphur
2. Soil sterilization in standing crop
3. Dinamik
4. ds/m
5. Bargat
6. Indra
7. Dessert fruit
8. Leguminosae
9. Soil sterilization
10. Male flower

Q.4 Give technical guidance to the farmer of Chikhali as SMS of KVK Navsari for cultivation of cucumber under protected condition. (10.0)

Q.5 Write short note (10.0)
1. Maturity indices of tomato for different class.
2. Plug tray raising of seedling.
3. Training in capsicum.
4. Artificial pollination in tomato during rainy and winter season.
5. Fumigation process in greenhouse.

Q.6 Define/Explain (Any five) (5.0)
1. Graft
2. Mulching
3. Topping
4. Monoeious
5. Deshooting
6. Training

*************
Q. 1 Expand the following terminologies (ANY TEN) (10.0)
1) WHO
2) WTO
3) FAO
4) CAC
5) ISO
6) IAMFES
7) ICMSF
8) NACMCF
9) IDF
10) GRAS
11) HMSO
12) TQM

Q. 2 WRITE SHORT NOTE (ANY TWO) (10.0)
1) Type of food wastages and Losses in Vegetables
2) Enzymes in Vegetable Processing
3) Properties of polyethylene
4) Labelling

Q. 3 DEFINE THE FOLLOWING TERMINOLOGIES (ANY TEN) (10.0)
1) Hazard
2) Operator
3) Monitoring
4) Risk
5) Validation
6) Verification
7) Limits
8) Licensing Authority
9) Registering Authority
10) Succulometer
11) Finished Product Yield
12) Thermoplastic

Q. 4 WRITE ABOUT THE HACCP IN VEGETABLE PROCESSING. OR WRITE ABOUT THE GMP IN VEGETABLE PROCESSING. (10.0)

Q. 5 WRITE ABOUT OVERALL FOOD SAFETY AND QUALITY IN VEGETABLE PROCESSING. OR WRITE ABOUT THE FACTORS AFFECTING THE VEGETABLE QUALITY. (10.0)
Q. 1: Fill in the blanks with appropriate word.

1. Balanced diet requires _______ g of vegetables per day.
2. ___________ is dehydrated acid bog plants.
3. Preferable range of soil pH for vegetable nursery should be ___________.
4. ___________ is the most serious disease in vegetable seedling nursery.
5. Farm book-keeping is an ___________ and ___________ of keeping farm records.
6. Farm history records contain ___________ and ___________ books.
7. The varieties prefixed with Pusa are released from ___________.
8. ___________ journal is used for maintaining daily records of all farm transactions connected with store articles.

Q. 2: Give University Tack Number of following farm registers.

1. Muster roll
2. Daily labour sheet
3. Plot history book
4. Dead stock article register
5. Farm produce delivery memo
6. Pay slip book
7. Labour abstract book
8. Cultivation sheet
9. Yield book
10. Store ledger

Q. 3: Write TRUE or FALSE.

1. Nitrogen deficiency in plants lead to chlorosis.
2. Large farm holdings is the major problem for maintaining farm records to the Indian farmers.
3. Dead-stock register is a type of crop record.
4. Vegetables gave more yield than other traditional crops like wheat and rice.
5. Pointed gourd is dioecious in nature.

Q. 4: Define nursery. Give importance of nursery with its detail classification.

Q. 5: Clarify the need of raising vegetable seedlings. Give requirements of raising seedlings with advantages and disadvantages of raised and flat nursery beds.

Q. 6: Give importance of farm records. Describe the advantages of farm records and accounts.
I. Fill in the blanks with appropriate answer. (10)
1. The orientation of greenhouse under hot and humid areas should be in-direction.
2. Important ingredients of soil media for greenhouse are soil, --, sand and --.
3. Appropriate dose of formaldehyde for fumigation is --------------.
4. 16:30:2 in drip system depicts --, -- & --, respectively.
5. The Government of Gujarat is imparting -- and -- per cent subsidy to farmers of the state.
6. EC of the irrigation water should be in the range of -- to --.
7. NCPAH refers to ----------------------------------.

II. Match the followings. (10)

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
</tr>
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<tbody>
<tr>
<td>1. Calcium Nitrate</td>
<td>a. Parthenocarpy</td>
</tr>
<tr>
<td>2. Training systems</td>
<td>b. Structural Exclusion</td>
</tr>
<tr>
<td>3. 4-CPAA</td>
<td>c. Relative humidity</td>
</tr>
<tr>
<td>4. Coco-peat</td>
<td>d. Buffering</td>
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<td>5. Steam</td>
<td>e. Canopy management</td>
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<td>6. Gutter</td>
<td>f. Media pasteurization</td>
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<td>7. Shade net</td>
<td>g. Pillowing</td>
</tr>
<tr>
<td>8. Insect proof net</td>
<td>h. Outer drainage of polyhouse</td>
</tr>
<tr>
<td>9. Cyocil</td>
<td>i. Light intensity</td>
</tr>
<tr>
<td>10. Dry &amp; wet bulb thermometer</td>
<td>j. Height control</td>
</tr>
</tbody>
</table>

III. Adjudge the followings as True or False (05)
1. The best way to control temperature and humidity under NVPH is through opening and closing of doors. (-------)
2. It is always recommended to prepare raised beds for cultivation of crops under protected conditions. (-------)
3. High humidity alone is responsible for poor fruit under NVPH. (-------)
4. The NPC drippers were installed in drip system of ELP polyhouse. (-------)
5. Parthenocarpy is devoid of fertilization. (-------)

IV. Define any five of the followings (05)
1. Buffering
2. Greenhouse
3. Mulching
4. Fertigation
5. Protected cultivation
6. Soil pasteurization
7. Pro-trays
V. Answer the followings in short. (Any five) (10)

1. Important considerations for commercial cultivation under greenhouse?
3. Classify polyhouses according to shape of structure.
4. Criteria to select greenhouse structure.
5. Important properties of cladding material.
7. Enlist different water soluble fertilizers being extensively used in protected cultivation.

VI. Answer the followings in detail. (Any two) (10)

1. Give the pictorial depiction of typical greenhouse along with importance of each component.
2. What is the principle of greenhouse? Enlist different advantages of protected cultivation.
3. What are the technical specifications of NVPH under HWE 7.2 module?
Q.1 Define the following (Any Ten). (10.0)
(A) Class I Preservative
(B) Tertiary packaging
(C) Breakeven point
(D) Sensory attribute
(E) Drying
(F) Rehydration
(G) Food safety
(H) Physical hazard
(I) Blanching
(J) Tomato puree
(K) HACCP

Q.2 Differentiate among the following (Any Three). (9.0)
(A) Flexible packaging and paper packaging.
(B) Taste and Flavour
(C) Secondary wholesale market and Terminal wholesale market
(D) FPO and FSSAI

Q.3 Answer the following (Any Two). (16.0)
(A) Calculate the cost analysis in detail for setup of a tomato ketchup plant.
(B) Explain briefly the importance of breakeven point with help of graphical representation. Using the following data, calculate the level of sale required per year to generate a profit of Rs.500000.
Sale price = Rs.45; Variable cost = Rs.25; Fixed cost = Rs.600000.
(C) List out different types of packaging used for processed products of vegetables and mention the details of information provided on label of packaging material. (Assume any processed vegetable)

Q.4 Write Full form of the following. (5.0)
(A) GHP
(B) ISO
(C) BIS
(D) MOFPI
(E) PFA

P.T.O.
Q.5 Write True or False of the following.

(A) The water soluble vitamins are retained during blanching.
(B) KMS is Class I Preservative.
(C) HDPE types of packaging film used to prevent shrinkage of the produce and reduce physiological loss in weight.
(D) Vegetables are important source of protein.
(E) Mechanical damage to vegetables is caused by compression, impact and vibration.

Q.6 Fill in the blanks with appropriate answers.

(A) The process which is not coming under canning ______.
   (hot filling, freezing, pasteurization)
(B) Vegetables are filled in cans and processed by heat in ______.
   (Water bath, Retort, Sun)
(C) ______ hazard is not associated with HACCP. (Physical, Chemical, Mechanical)
(D) ______ is applied to vegetables to inhibit oxidative and enzymatic browning. (KMS, Salt, Sodium Benzoate)
(E) ______ is the most widely used material for cans. (Tin plates, Stainless steel plates, Glass)
NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI
SEVENTH SEMESTER B.Sc. (Hons.) Horticulture END EXAMINATION-2014 (REGULAR)

SUB: COURSE NO. HWE 7.5.3 TITLE: ECONOMICS AND MARKETING OF PROCESSED PRODUCTS OF FRUITS

Date: 02/01/2015 Time: 14:30 to 16:30 Hrs.
Day: Friday Marks: 50

Q.1 Expand the following terms [05]

(a) APEDA (b) APMC (c) BIS (d) CIPHET (e) FPO
(f) GRAS (g) FSSAI (h) HACCP (i) NAFED (j) PFA

Q.2 Write True or False of the following. [05]

(a) Ministry of Food Processing Industries, Government of India is the Administrative Ministry for the implementation of Food Safety and Standards Act, 2006.
(b) Salt and Sugar both are Class I Preservative.
(c) The Brix scale is used by the fruit-juice industry in determining the sucrose equivalent of soluble solids in the juice.
(d) An over ripe fruit is rich in pectin.
(e) Heating and cooling should be carried out relatively rapidly to avoid thermal damage to glass containers.

Q.3 Fill in the blanks with appropriate answers. [05]

(a) During ripening of fruits, starch and organic acid is converted into ____________.
(b) Sweetness of fresh fruit is normally measured in terms of ____________.
(c) Jelly quality depends on the amount of ____________ present in the fruit, acidity and sugar content.
(d) Dipping cut fruits in citrus juice are used for controlling ____________ browning.
(e) ____________ pigment play an important role in colour of canned mango pulp.

Q.4 Define the following terms (Any Ten) [10]

(a) Adulteration (b) Agricultural Marketing (c) Breakeven point (d) Candy (e) Hazard (f) Jelly (g) Kinesthetic attribute (h) Modern market (i) Terminal market (j) Tertiary packaging (k) Trademark
Q.5 Answer in brief (Any three).

(a) Graphically show the breakeven point indicating loss and profit area. Mention the advantages of breakeven point.

(b) Cost calculation for preparation of one litre of Pineapple nectar.

(c) Cost calculation for preparation of one litre mango RTS.

(d) How is terminal market different from secondary wholesale market?

Q.6 Answer the following (Any Two)

(a) List out different types of packaging used for processed products of fruit and mention the details of information provided on label of packaging material. (Assume any processed fruit product)

(b) Write in detail of cost calculation for preparation of 100 kg mango jam. What will be minimum cost price of 1 kg mango jam at 20% profit? What will be the cost price to customer if 10% discount will be provided on the same product? (Assume approximate cost of necessary ingredient)

(c) Using the following data, calculate the level of sale required per year to generate a profit of Rs.500000.

\[
\begin{align*}
\text{Sale price} & = \text{Rs.45} \\
\text{Variable cost} & = \text{Rs.25} \\
\text{Fixed cost} & = \text{Rs.600000.}
\end{align*}
\]

What is the maximum percentage discount that you can offer on your Marked Price (MRP) so that you end up selling at 15% profit, if you had initially marked your processed product up by 25%?

*****************************************************************************
NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI
CENTRE: ASRER COLLEGE OF HORTICULTURE AND FORESTRY, NAVSARI
SEVENTH SEMESTER B.Sc. (Hons.) HORTICULTURE END EXAMINATION (REGULAR)(New Course)
COURSE NO. HWE 7.3.3
TITLE: PACKAGING AND MARKETING OF FRUIT PLANTS

Date: 2/11/2015 Marks: 50
Day: Friday Time: 14.30 to 16.30

Q.1 Fill in the blanks (10.0)

(1) Packaging material should be _______ and _______ available.

(2) One of the oldest suggestion is to cut down the tap root system of the __________ at least one month before the actual date of lifting.

(3) Propagator should have fair idea about _______ , _______ and _______ of the plant.

(4) Price of inarch graft of Kesar _____, Hybrid mangoes _____, Alphanso _______ and Sapota ______.

Q.2 Give the correct answer for following. (15.0)

(1) To achieve high rate of success in the field, it is always advisable to lift the saplings with a _______.
a) Ball of earth b) Without ball of earth c) Non of a and b

(2) To avoid the damage of roots, it is advisable to irrigate nursery, _______ days before the actual date of lifting of plants.
a) 3-4 b) 1-2 c) 4-5

(3) One of the oldest suggestion is to cut down the tap root system especially in _______ at least one month before the actual date of lifting.
a) Sapota b) Mango c) Jamun

(4) Store house conditions reduce the _______ and _______.
a) Transpiration and b) Evaporation and respiration c) Respiration and transpiration evaporation

(5) _______ pots are porous in nature.
a) Metal b) Rigid plastics c) Clay/earthen

(6) Consumption of nursery products has been growing at an annual rate of _______ in almost all the major importing countries.
a) 15% b) 20% c) 25%
(7) Nursery products have the ability to earn _____ times more foreign exchange than the cereals and agricultural products.
   a) 15 to 20 %  b) 20 to 25 %  c) 25 to 30 %

(8) ________ market is very important and promising for India.
   a) USA  b) Australian  c) European

(9) Cut down of tap root system during lifting for development of ________ roots.
   a) Tertiary  b) Secondary  c) Preliminary

(10) The bare rooted saplings should be packed in ________.
    a) Cocopeat  b) Sphagnum moss  c) Soil

(11) ________ is used for wrapping the earth ball of the saplings.
    a) Paddy straw  b) LDPE  c) Sacking cloth

(12) Nursery marketing has been developed in about ________ decades.
    a) Four  b) Two  c) Three

(13) The mortality rate of the container grown plants is ________.
    a) High  b) Less  c) Very less

(14) If clay pots are continuously used, it is likely that pores of the walls are accumulated with ________.
    a) Soil  b) Roots  c) Salts

(15) ________ are biodegradable in nature.
    a) Rigid plastics  b) Fiber pots  c) Plastic bags

Q.3 Give the answer of following questions (Any Four)
   (8.0)
   1) Write down the advantages of container grown plants.
   2) On which points nurseryman should emphasis more to get higher price for his plant material?
   3) Write down the characteristics of packaging material.
   4) Why India has very good business potential for the International trade of nursery products?
   5) What are the different advantages to our country to set up export oriented units?
   6) Explain different types of containers.

Q.4 Work out the detail economics of epicotyl grafting in mango.  (10.0)

Q.5 Write down the detail procedure of selling of mango in arch grafts from RHRS, NAU, Navsari.  (7.0)
Q.1 Answer in brief. (Any two) (10)

1. Enlist the factors affecting cut flower longevity. Discuss them in details with suitable examples.
2. Discuss in details regarding factors affecting cut flower production.
3. Discuss in details regarding constraints in Indian floriculture industry.

Q.2 (A) Define/ Explain the following terms. (Any four) (4)
1. Cut flower
2. Market yard
3. Grading
4. Pulsing
5. Conditioning or hardening

Q.2 (B) Write short notes. (Any three) (6)
1. Packaging and transportation of cut flowers
2. Precooling of cut flowers
3. Marketing channels
4. Bunching in rose

Q.3 Fill in the blanks. (10)
1. Cut flowers like _______ and _______ are highly sensitive to ethylene.
2. _______ is a major cut flower producing state in India.
3. Practically, _______ percent relative humidity is maintained inside cold storage.
4. _______ is the highest consumer and importer of cut flowers in the world.
5. _______ country is leading in the cut flower export in the world.
6. The cold storage temperature for tropical orchids is _______ °C.
7. The leaves from the lower _______ portion of the stem are removed by manually or by machine in de-leafing of cut flower rose.
8. _______ is the national flower of India.
9. _______ is leading country in the loose flower production in the world.

Q.4 Do as directed. (10)
1. Write the name of any two germicides/biocides used in vase solution.
2. Write down the harvesting stage of gladiolus and carnation for distant market.
3. Enlist the different methods of storage for cut flowers.
4. Write the name of any five cut flowers grown in India for export.
5. Mention the criteria for grading of cut flowers.
Q.5 (A) Write the full form of the following.

1. NHB
2. IARI
3. ICAR
4. APEDA
5. NABARD

(B) Match the following.

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Cut green capital</td>
<td>1. Aalsmeer, the Netherlands</td>
</tr>
<tr>
<td>2. Packaging of rose</td>
<td>2. Dahlia</td>
</tr>
<tr>
<td>3. Largest producer of loose flowers</td>
<td>3. 40 bunches/box</td>
</tr>
<tr>
<td>4. King of flowers</td>
<td>4. Rose</td>
</tr>
<tr>
<td>5. Packaging of carnation</td>
<td>5. Apopka, Florida</td>
</tr>
<tr>
<td>6. International flower market</td>
<td>6. GA₂</td>
</tr>
<tr>
<td>7. Center for flower auction</td>
<td>7. ABA</td>
</tr>
<tr>
<td>8. Growth promoter</td>
<td>8. 30 bunches/box</td>
</tr>
<tr>
<td>9. Growth retardant</td>
<td>9. India</td>
</tr>
<tr>
<td>10. Queen of flowers</td>
<td>10. Delhi</td>
</tr>
</tbody>
</table>

************
Q.1 Define the following terms (any ten) (10.00)
1) Protected Cultivation
2) Cladding Material
3) Plug Tray
4) Gutter
5) Fertigation
6) Hardening
7) Coco Peat
8) Hydroponics
9) Orientation
10) Soil sterilization
11) Green house effect
12) Polytunnel

Q.2 Match the followings. (12.00)

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Arches</td>
<td>1) Parthenocarpy</td>
</tr>
<tr>
<td>2) Training systems</td>
<td>2) Member Support to Covering Material</td>
</tr>
<tr>
<td>3) 4-CPAA</td>
<td>3) Relative humidity</td>
</tr>
<tr>
<td>4) Coco-peat</td>
<td>4) Buffering</td>
</tr>
<tr>
<td>5) Ridge</td>
<td>5) To support the structure against wind</td>
</tr>
<tr>
<td>6) Gutter</td>
<td>6) Soilless Media</td>
</tr>
<tr>
<td>7) Shade net</td>
<td>7) Media pasteurization</td>
</tr>
<tr>
<td>8) Dry &amp; wet bulb thermometer</td>
<td>8) Outer drainage of poly house</td>
</tr>
<tr>
<td>9) CO2</td>
<td>9) To Control light intensity</td>
</tr>
<tr>
<td>10) Steam</td>
<td>10) Height control of plant</td>
</tr>
<tr>
<td>11) Calcium Nitrate</td>
<td>11) Photosynthesis</td>
</tr>
<tr>
<td>12) Bracing</td>
<td>12) Highest Horizontal Section on the top roof</td>
</tr>
</tbody>
</table>

Q.3 Answer the following question (any five) (15.00)
1) Give the classification According to Cladding/Covering Material
2) Enlist the important point for Orientation
3) Write the components of green house with their uses
4) Mention important steps for bed preparation
5) Goals of climate control
6) Benefits of telescopic method for foundation of green house

Q.4 Answer the following question in detail (any two) (10.00)
1) Principle and advantages of Green house
2) Media Preparation
3) Maintenances of NVPH Structure

Q.5 Write the True or False. (3.00)
1) Top vent opening should be towards Westside.
2) The cladding materials are very costly.
3) Instruments for environment control in the green house are not easily available.
4) Protected cultivation is based on green house effect principle.
5) Gable is the transparent wall of green house.
6) Protected cultivation does not requires skill labour.
NAVSARI AGRICULTURAL UNIVERSITY, NAVSARI
SEVENTH SEMESTER B.Sc. (HONS.) HORTICULTURE END EXAMINATION
(REGULAR)
SUB: COURSE NO.HWE 7.6.1 TITLE: ORIENTITATION, PROJECT
FORMULATION AND PLANNING FOR PROCESSING OF VEGETABLES CROPS

DATE: 17/12/2015 TIME: 14:30 TO 16:30 HRS.
DAY: THURSDAY MARKS: 50

Q.1 Write short notes on (any Four). (12)
   (a) Types of food losses/wastages in vegetables
   (b) Breakeven point and its graphical representation
   (c) Blanching with its advantages and disadvantages
   (d) Objective of peeling of vegetables and its different techniques
   (e) Sterilization, sterilizing agent and D- Value
   (f) HACCP and its seven principles
   (g) Curing of vegetable with examples

Q.2 Define the following terms. (7)
   (a) Antioxidant
   (b) Preservative
   (c) Flavour
   (d) Brining
   (e) Exhausting
   (f) Z-value
   (g) Hazard

Q.3 Answer the following (Any Two). (16)
   (a) What are the selection criteria for location of a vegetable processing plant?
      Draw a plant layout of vegetable processing plant.
   (b) Explain briefly different types of book and registers maintained for record
      keeping of materials, resources and sales management in vegetable
      processing industry.
   (c) List out different types of packaging used for processed products of
      vegetables with suitable examples and mention the details of information
      provided on label of a packaging material. (Assume any processed
      vegetable)

Q.4 Write Full form of the following. (5)
   (a) GHP
   (b) CAC
   (c) BIS
   (d) MOFPI
   (e) PFA
   (f) CIPHET
   (g) CFTRI
   (h) IIHR
   (i) FSSAI
   (j) HACCP
Q.5 Write True or False of the following. (5)
(a) The water soluble vitamins are retained during blanching.
(b) KMS is Class I type Preservative.
(c) HDPE types of packaging film used to prevent shrinkage of the produce and reduce physiological loss in weight.
(d) Vegetables are important source of protein.
(e) Mechanical damage to vegetables is caused by compression, impact and vibration.

Q.6 Fill in the blanks with appropriate answers from bracket. (5)
(a) The process which is not coming under canning is _________. (hot filling, freezing, pasteurization)
(b) Vegetables are filled in cans and processed by heat in ________. (water bath, retort, Sun)
(c) Bacterial spores do not grow or germinate below pH _________. (5.3, 4.3, 3.3)
(d) Linear low density polyethylene has a density in the range of ________ g/cc. (0.915-0.925, 0.926-0.940, 0.930-0.935)
(e) ________ is the most widely used material for cans. (Tin plates, Stainless steel plates, Glass)
Q. 1: Fill in the blanks with appropriate word. 10.0

(1) Indian Institute of Vegetable Research is located at ____________.
(2) Preferable range of soil pH for vegetable nursery should be ____________.
(3) Media of vegetable nursery must have ____________ volume in dry and wet conditions.
(4) Farm book-keeping is an ____________ and ____________ of keeping farm records.
(5) Farm history records contain ____________ and ____________ books.
(6) The varieties prefixed with Pusa are released from ____________.
(7) ____________ chemical is used for fumigating nursery seed-bed.
(8) ____________ journal is used for maintaining daily records of all farm transactions connected with store articles.

Q. 2: Give the University Tack Number of following farm registers 05.0

(1) Muster roll (2) Daily labour sheet (3) Plot history book
(4) Dead stock article register (5) Farm produce delivery memo
(9) Yield book (10) Store ledger

Q. 3: Write TRUE or FALSE. 10.0

(1) Functional illiteracy of farmers is a problem of book-keeping.
(2) Small farm holdings is the major problem for maintaining farm records to the Indian farmers.
(3) Nursery media must have sufficient water holding capacity.
(4) Dead-stock register is a type of crop register.
(5) The main objective of home nursery is to earn money on investment.

Q. 4: Define nursery. Give pre-requisites for establishment of nursery. 10.0

Q. 5: Define media and give characteristics of good media. Describe following components of propagating media. 10.0

(1) Soil (2) Sand (3) Sphagnum moss (4) Leaf-mould

Q. 6: Give importance of farm records. Describe the advantages of farm records and accounts 5.0
Q.1 Fill in the blanks (15.0)

(1) The main aim of establishing a nursery is to ________.

(2) One of the oldest suggestion is to cut down the tap root system of the __________ at least one month before the actual date of lifting.

(3) Store house should be maintained at ________ °C temperature and _________% relative humidity.

(4) Fiber pots are manufactured from _______________ and _______________.

(5) Price of inarch graft of Kesar ______, Hybrid mangoes ______, Alphanso ______ and Sapota ______.

(6) The price of citrus seed is ________ Rs/kg

(7) Propagator should have fair idea about ___________, ___________ and ___________ of the plant.

(8) ______________ is the largest export marketing the world.

Q.2 Give the correct answer for following. (10.0)

(1) The high or low temperature and ______ may favors desiccation of the plants lifted from the nursery.
   a) Humidity    b) Rainfall    c) Light

(2) To avoid the damage of roots, it is advisable to irrigate nursery, ______ days before the actual date of lifting of plants.
   a) 3-4    b) 1-2    c) 4-5

(3) One of the oldest suggestion is to cut down the tap root system especially in ______ at least one month before the actual date of lifting.
   a) Sapota    b) Mango    c) Jamun

(4) Store house conditions reduce the __________ and __________
   a) Transpiration and evaporation    b) Evaporation and respiration    c) Respiration and transpiration
5. Most of the container having
   a) Lower durability  
   b) Medium durability  
   c) Higher durability

6. Consumption of nursery products has been growing at an annual rate of ___ in almost all the major importing countries.
   a) 19%  
   b) 20%  
   c) 21%

7. The price of custard apple seed is _______ Rs/kg.
   a) 105  
   b) 110  
   c) 100

8. _____ pots occupy less space in nursery
   a) Clay pots  
   b) Rigid plastics  
   c) Fiber pots

9. If clay pots are continuously used, it is likely that pores of the walls are accumulated with ___________.
   a) Soil  
   b) Roots  
   c) Salts

10. The price of bio-compost _______ Rs/t
    a) 375  
    b) 360  
    c) 410

Q.3 Give the answer of following questions (Any Four)
1) Why India has dismal performance in the export of nursery plants?
2) On which points nurseryman should emphasis more to get higher price for his plant material?
3) Write down the characteristics of packaging material.
4) Why India has very good business potential for the International trade of nursery products?
5) What are the different advantages to our country to set up export oriented units?
6) Explain different types of containers.

Q.4 Work out the detail economics of citrus and pineapple or custard apple and passion fruit.

Q.5 Write down the detail procedure of marketing of mango inarchgrafts from RHRS, NAU, Navsari.
SEVENTH SEMESTER (new Course) B.Sc. (Hons) Horticulture (regular)  
SUB: COURSE NO. HWE. 7.1.1 TITLE: Horticulture Work Experience in Protected Cultivation of Flower Crops- Orientation, Project Formulation, Layout and Planning

Date: 14 / 12 / 2015  
Time: 14:30 to 16:30

Day: Monday  
Marks: 50

Q1. Define Greenhouse. Enlist and explain different parts of Naturally ventilated greenhouse with figure (8)

Q2. Define or explain in short: (8)
   a. Fan and Pad system in green house
   b. UV stabilized film
   c. Net House  
   d. Pinching
   e. Disbudding
   f. Thermic film
   g. Soil-sterilization
   h. NV Polyhouse

Q3. True or False (5)
   1. NV type of greenhouse is highly suitable for hot and dry climate.
   2. 25,000 to 30,000 LUX light is sufficient for rose cultivation
   3. UV stabilized and UV Block 1.DPE films used as cladding material have the same properties.
   4. During night time the side vents should be kept closed in poly house.
   5. Open ventilated and naturally ventilated polyhouse are the same

Q4. Fill in the blanks (4)
   1. ________ film restores temperature inside the green house.
   2. ________(gas) and _________(liquid) are used for sterilization of media.
   3. Polyll used as cladding material for NV polyhouse should be _________ and of _________ thickness
   4. UV Block film is also known as ________ film.
   5. In greenhouse, active cooling is provided by ________ system.
   6. Alternate energy systems like ________ is the upcoming technology for reducing energy inputs in greenhouse.

(P.T.O)
Q5. Discuss in brief (Any three) (15)

a. What is the influence of light and temperature on plant growth in greenhouse? Explain in context to flower crops.
b. Enlist different properties of polyfilm with regard to their use in greenhouse as cladding film?
c. Enlist different types of media. Enlist different methods for soil-sterilization and explain application procedure for any one.
d. Explain the bed layout for rose and gerbera with figure. Which are the important points to be considered while planting of rose and gerbera.

Q6. Enlist major components for a project of NV green house (1000 m² area) based on rose or gerbera cultivation. Mention budget allotment for the same along with the subsidy criteria for general class in Gujarat State (7)

Q7. Mention optimum light, temperature and relative humidity requirements for cultivation of rose, gerbera and anthurium (3)
Q.1 (A) Answer in brief. (Any three) (15)
1. Discuss in details regarding constraints in the Indian floriculture industry.
2. Enlist the different types of pre cooling techniques in cut flowers. Discuss them in details.
3. Enlist the factors affecting cut flower longevity. Discuss them in details with suitable examples.
4. Discuss in details regarding steps taken by the Government of India to increase flower export.

(B) Write short notes (Any three) (12)
1. Channels of flower marketing
2. Packaging of cut flowers
3. Causes for quality loss in flowers
4. Marketing of Gladiolus
5. Grading in cut flowers

Q.2 (A) Define/explain. (5)
1. Cut flower
2. Rehydration
3. Pre cooling
4. Pulsing
5. Chilling injury

(B) Fill in the blanks. (10)
1. The leaves from the lower ________ portion of the stem are removed by manually or by machine in de-leafing of cut flower rose.
2. _____________ is a leading country in the loose flower production in the world.
3. _____________ numbers of flowers per bunch is kept in carnation for standard packaging.
4. For distant market, rose is harvested at _____________ stage.
5. _____________ is a major loose flower producing state in India.
6. _____________ is a leading country in the cut flower export in the world.

P.T.O
7. Harvesting stage of carnation is __________.
8. __________ numbers of bunches per box is kept in gerbera for standard packaging.
9. __________ numbers of flowers per bunch is kept in rose for standard packaging.
10. __________ is a major importing country and consumer of cut flowers in the world.

Q.3 (A) Write the full form of the followings.
1. APEDA
2. NHB
3. STS

(B) Match the following.

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. April-May</td>
<td>1. Carnation</td>
</tr>
<tr>
<td>2. King of flower</td>
<td>2. High international seasonal opportunity</td>
</tr>
<tr>
<td>3. International flower market</td>
<td>3. Delhi</td>
</tr>
<tr>
<td>4. Growth retardant</td>
<td>4. GA</td>
</tr>
<tr>
<td>5. Queen of flower</td>
<td>5. Aalsmeer, The Netherlands</td>
</tr>
<tr>
<td>6. Ethylene sensitive flower</td>
<td>6. High domestic seasonal opportunity</td>
</tr>
<tr>
<td>8. Chilling sensitive flower</td>
<td>8. Rose</td>
</tr>
<tr>
<td>9. Domestic flower market</td>
<td>9. ABA</td>
</tr>
<tr>
<td>10. Growth promoter</td>
<td>10. Anthurium</td>
</tr>
</tbody>
</table>

**************
Q.1 Fill in the blanks. (5.0)
1. Seeds of mango, jackfruit, citrus, etc. are ________ type of seed which cannot be stored for longer period after extraction from fruit.
2. ________ is most commonly used systemic fungicide in nursery.
3. To prepare Bordeaux mixture, we need to mix ________ and ________ in equal proportion.
4. ________ is the most commonly used media for air-layering in commercial nurseries.
5. In pomegranate, ________ type of cuttings can be used for propagation.
6. The most commonly used chemical for bacterial diseases is ________.
7. Mango mother block is necessary to produce mango grafts by ________ method of grafting.
8. ________ and ________ are commonly used soilless media for seedling trays in commercial nurseries.

Q.2 Write True or False for following. (5.0)
1. For softwood grafting in mango, the rootstock should be 30-40 days old.
2. Hybrid Papaya plants are commercially propagated by tissue culture.
3. In air-layering, the rooting occurs from the bottom cut.
4. Cocopeat is most commonly used media for air layering.
5. True-to-type plants of polyembryonic mango varieties can be multiplied by seeds.
6. Clay soil is normally used in nursery for propagation.
7. Now a days, earthen pots are most widely used container in nursery.
8. In papaya, there are about 30-35 seeds in 1.0 gram.
9. Shade-net house is commonly used to decrease temperature.
10. ‘Kaveri’ is the hybrid variety of passionfruit.

Q.3 Define / Explain the following (Any four) (4.0)
1. Nursery
2. Grafting
3. PGR
4. Orthodox seed
5. Propagation
6. Media

Q.4 Select appropriate option and match the pair. (5.0)

<table>
<thead>
<tr>
<th>Mulberry</th>
<th>Nematode control in nursery</th>
</tr>
</thead>
<tbody>
<tr>
<td>Epicotyl grafting</td>
<td>Soak in water for 12-24 hours</td>
</tr>
<tr>
<td>Methyl parathion dust</td>
<td>Air layering not successful</td>
</tr>
<tr>
<td>Tissue culture plants used</td>
<td>Ant control in nursery</td>
</tr>
<tr>
<td>Red Lady</td>
<td>Ber</td>
</tr>
<tr>
<td>Seed treatment in passionfruit</td>
<td>Malformation</td>
</tr>
<tr>
<td>Orthodox seed</td>
<td>Banana, pomegranate, datepalm</td>
</tr>
<tr>
<td>Furadan 3G</td>
<td>Commercial cultivation for leaves</td>
</tr>
<tr>
<td>Averrhoa carambola</td>
<td>20-25 day old rootstock</td>
</tr>
<tr>
<td>Disorder of mango nursery</td>
<td>Gynodioecious variety of papaya</td>
</tr>
</tbody>
</table>

Q.5 Differentiate following (Any two) (6.0)
1. Epicotyl grafting in mango V/s Inarch grafting in mango
2. Asexually propagated fruit plants V/s Sexually propagated fruit plants
3. Pineapple propagation by crown V/s Pineapple propagation by slips
### Q.6 Describe in detail the step wise process.

Write in detail the step-wise process of Epicotyl grafting in mango.

**Or**

Write in detail about importance of papaya, planting distance, number of plants required for one hectare, varieties, seedling raising procedure and care to be taken while raising seedlings.

### Q.7 Write short notes on following (Any three) (9.0)

1. Enlist essential criteria of mother block for fruit plant nursery. Calculate number of grafts required to prepare mother block on 0.5 hectare land (spacing 2.0 m x 1.0 m).
2. Give botanical name, family, commercial varieties & commercial propagation methods for mango, banana, custard apple, pomegranate, kagzi lime, mulberry, noni, pineapple, passionfruit and mulberry.
4. Give advantages and disadvantages of soil, cocopeat, vermiculite, sand and FYM as a media for propagation.

### Q.8 Write in short (Any three) (6.0)

1. Which growth regulator is commonly used for rooting of cuttings? In which chemical we can dissolve it? Calculate quantity to prepare 500ml solution of 1000ppm concentration.
2. Enlist different types of seed treatments. Give seed treatment and precautions to be taken for mango, custard apple, and citrus seeds before sowing.
3. Write in tabular form about different plant parts used and months required for fruiting in pineapple.
5. Enlist major insect-pests seen in nursery and give their control measures with name of pesticides and their doses per 10 litre water.
6. Enlist major diseases seen in nursery and give their control measures with name of chemicals and their doses per 10 litre water.

### Q.9 Give appropriate reasons (Any five) (5.0)

1. Why rootstocks are normally raised from seeds?
2. Why defoliation of scion is advised before grafting?
3. Why high humidity is necessary in mist-chamber?
4. Why soaking of cocopeat is necessary before use?
5. Why true-to-type plants of polyembryonic mango varieties can be raised through seeds?
6. Why polythene bags is most widely used container in nursery?
Q1 Fill in the Blanks
1. Rose is a national flower of __________.
2. A bunch of gerbera contain ________ flowers.
3. ________practice in rose is followed to develop large bud size while ________ practice provides compactness to the flower bud.
4. ________ is a symbol of royalty in Japan.
5. First bending in rose is also known as ________.
6. Rose plants are prone to ________ disease during monsoon and ________ during winter.
7. 1 kg of rose oil can be obtained from ________ kg rose petal.
8. ________°C day temperature is ideal for dendrobium orchid cultivation.

Q2 Do as directed (any five)
1. Enlist advantages of drip irrigation system.
2. Classification of carnation.
3. Enlist disease and remedies in gerbera.
4. Explain classification of Orchid on basis of growing pattern.
5. Explain Pinching in carnation.
6. Harvesting indices of rose, gerbera, carnation and anthurium.

Q3 Write down production technology of rose in detail.

Q4 Name five different coloured varieties each of Rose and gerbera

Q5 Write short note on following (Any three)
1. Bending in rose with diagram.
2. propagation of anthurium.
Q-1 Write Short Note (Any TWO) [10.0]
   a) Food Additives for Fruit Preservation.
   b) Principles of fruit preservation.
   c) World scenario of fruit production and its level of processing.

Q-2 Answer The Following Questions. (Any FOUR) [12.0]
   a) What are the potential processed products from any three fruits you like he most? Also give the list of machinery required for their preparation individually.
   b) What type of criteria one should keep in mind while selection of location for fruit processing unit included factory site and building?
   c) What are the different methods of fruit product freezing? Explain in short.
   d) What is the importance of Dead-Stock Register and Fuel Consumption Register ('https://example.com') in food processing industry?
   e) What are the key points when handling fruit products?

Q-3 Answer In Short. (Any FOUR) [08.0]
   a) What are the different types of post harvest losses in fruit?
   b) What is the difference between natural and artificial food colour?
   c) What are the positive and negative effects of irradiation?
   d) What is the process flow line for fruit canning?
   e) What are the sanitary and hygienic requirements for Fruit Processor?
   f) Can you prepare the (https://example.com) store general register columns by taking examples? Prepare it for at-least 2 items.

Q-4 Write clearly that, the statement given is true or false? [06.0]
   a) The pectinase is used for clarification, filtration and concentration.
   b) The flavonoids are responsible for the flavor of orange fruits.
   c) ‘Safrole’ is prohibited in food as per PFA act.
   d) For the juice having pH 3.5 – 4.0, Sodium Benzoate @ 0.06–0.1% is sufficient.
   e) ‘Pesticide Residue’ is Pre-harvest factor as far as quality of fruit is concer.
   f) Texture of fruit could be sensed by hand and mouth feels.
   g) The plastic containers used for fruit packaging are of ‘Thermoplastic’ group only.
   h) The ‘acid resistance’ can are also known as ‘S.R. can’.
   i) The ‘Indent Form’ is used for purchase of an ingredient or a machine part.
   j) The telescopic containers are single piece box.
   k) Grader is used for cleaning of fruit.
   l) The present FSSAI licence number of ‘NAUROJI’ brand fruit products is 19546.
Q-5 Match The Followings. [10.0]

<table>
<thead>
<tr>
<th>Group A</th>
<th>Group B</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Banana based product</td>
<td>A. Fat</td>
</tr>
<tr>
<td>2. Citrus based product</td>
<td>B. Application for License</td>
</tr>
<tr>
<td>3. Preservative</td>
<td>C. Mineral Oil</td>
</tr>
<tr>
<td>4. Emulsifier</td>
<td>D. Marmalade</td>
</tr>
<tr>
<td>5. Nutritional Supplement</td>
<td>E. Hydrogenated sparm oil</td>
</tr>
<tr>
<td>6. Calorie Supplement</td>
<td>F. Sugar</td>
</tr>
<tr>
<td>7. Machinery Lubricant</td>
<td>G. Fig</td>
</tr>
<tr>
<td>8. Anti-sticking Agent</td>
<td>H. Registered License</td>
</tr>
<tr>
<td>9. Form B</td>
<td>I. Iron</td>
</tr>
<tr>
<td>10. Form C</td>
<td>J. Lecithin</td>
</tr>
</tbody>
</table>

Q-6 Fill In The Blanks. [02.0]

a) FPO stands for ________________________.
b) FDA stands for ________________________.
c) FAO stands for ________________________.
d) FSSAI stands for ________________________.

Q-7 Do As Directed. [ANY ONE] [02.0]

a) Draw the plan layout of any fruit processing plant building.
b) Draw the lay out of machinery for processing of fruit in plant.

------xxxxxx------
NAVRSARI AGRICULTURAL UNIVERSITY, NAVSARI
VII SEMESTER B. Sc. (Hons.) HORTICULTURE END EXAMINATION (REGULAR)
COURSE NO. HWE.7.3.1
TITLE: ORIENTATION, PROJECT FORMULATION, LAY OUT AND PLANNING (0+2)

DAY: Monday  MARKS: 50

Q.1 (A) What is mother plant? Enlist the points kept in mind during selection of mother plants. Write
detail procedure for planting/establishment of mother block. 7.0
(B) Prepare labeled lay-out plan for nursery in 3.0 ha area. 3.0

Q.2 Answer any two of the followings. 10.0
(A) Enlist the points to be kept in mind while establishing nursery. Discuss the factors affecting the
establishment of nursery.
(B) Discuss in brief about the types of green/poly houses.
(C) Write procedure for nursery recognition.

Q.3 Answer any two of the followings. 10.0
(A) What is farm book keeping? Describe importance and advantages of farm records and
account.
(B) What is media? Discuss different types of propagation media and enlist characters of good
media for nursery.
(C) Discuss different parts or features of lay-out of nursery.

Q.4 (A) Fill in the blanks. 10.0
1) ‘Good’ nursery is graded as ______ while ‘Very good’ nursery graded as ______.
2) University Tack No. for Muster roll and Daily labour sheet is _____ and _____ respectively.
3) ___________ is the second best friend of newly appointed farm manager.
4) ________ should be provided after cash payment for the item purchased by consumers.
5) Purchase of tractor should be entered in ______________ register while, purchase of 100
kg urea should be entered in __________________ register.
6) Full form of NHB is __________ while, its head office is located at ________.
7) In air layering, __________ is most desirable media.
8) Generally __________ coloured polythene bags are used for propagation in nursery.
9) Farm produce which is ready for market is entered and handed over farm manager is noted in
10) For fast rooting in cutting and germination of seed _______ and _______ hormones are preferred respectively.
11) __________ used for sealing the graft union.
12) __________ is used for lifting the soil or manures while, __________ is
used for lifting seedlings from bed for transplanting.
13) Mother blocks of __________ and __________ mango varieties are well
established at RHRS, NAU, Navsari.

Q.5 Reply as directed 10.0
1) Enlist different types of nursery pots.
2) Write uses of watering cane and dibbler.
3) Enlist different types of labour and account records.
4) How wholesale nursery is differing from retail nursery?
5) Enlist the activities of RHRS Nursery.
Q.1: Fill in the blanks (Any 5) (10.0 marks)
(1) Seaboard market is primarily meant for ....and ..... commodities.
(2) ..... is a legal mark indicating the....of owner to use a brand.
(3) A persistent downward trend in the sales of product indicates that it has reached the...... or .....stage of its life cycle.
(4) Break-even point sales are equal to.....plus ..... 
(5) Cost-Volume-Profit analysis is an important tool in terms of .....and ..... 
(6) Sales = Variable expenses plus .....plus ..... 

Q.2: Write down the full-form of the following (Any 5) (5.0 marks)
(1) APMC (2) FSSAI (3) FPO (4) FAO (5) ISO (6) HACCP 

Q.3: Define the following (Any 5) (5.0 marks)
(1) Village market (2) Marketing (3) Adulteration (4) CFB packaging 
(5) PET packaging (6) Stake holder 

Q.4: Write down the answers of the following questions (Any 5) (15.0 marks)
(1) Factors that leads to success of the product?
(2) Enlist the details present on the label of the food product.
(3) Advantages and limitations of Break-Even-Point analysis 
(4) Seven principles of HACCP 
(5) Explain briefly: Sensory evaluation and 9-hedonic point scale? 
(6) Explain briefly: Source reduced form of packaging and its advantages 

Q.5: Write short notes on the following (Any 3) (15.0 marks)
(1) Classification of market on the basis of location 
(2) Categorization of packaging on the basis of layers 
(3) Documents required be enclosed for New Application for License to Central Licensing Authority 
(4) Quality of the products depends on which attributes? Enlist the issues require focus for quality control.
Q. 1: Fill in the blanks with appropriate word. 10.0
   (1) __________________ is the largest export market for nursery products in the world.
   (2) Plants offered for sale should be of __________ and __________ free.
   (3) The roots of the lifted saplings must be wrapped with some moist material to avoid ____________ .
   (4) The store house should be maintained at low ______ and high _________.
   (5) Unskilled farm labour of NAU gets wages of Rs. ______ per day.
   (6) Packaging of nursery material should look ____________ to the indenters.
   (7) ____________ and __________ colours are associated with natural products.

Q. 2: Match “A” with “B” 05.0

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. A bar code</td>
<td>1. Jute</td>
</tr>
<tr>
<td>2. Hessian cloth</td>
<td>2. Ventilation</td>
</tr>
<tr>
<td>3. Logo</td>
<td>3. Carbendazim</td>
</tr>
<tr>
<td>4. Damping off</td>
<td>4. Branding</td>
</tr>
<tr>
<td>5. The store house</td>
<td>5. Label</td>
</tr>
</tbody>
</table>

Q. 3: Write TRUE or FALSE. 10.0
   (1) India is a treasure house of large number of nursery plants.
   (2) Labour cost in India is comparatively higher to most of the European countries.
   (3) Containers used for raising of plants can not be reused repeatedly.
   (4) There is no need to label the seedlings of vegetables at the time of sale.
   (5) Marketing of nursery product is same for all the countries.
   (6) The introduction of auction center in nursery trade is in India.
   (7) In direct sale growers sale their produce through auction centers.
   (8) LDPE, HDPE and PP material are used as packing material.
   (9) Auction brings the wholesalers in the direct contact with large number of growers.
   (10) Packing of nursery material should ensure protection against drying out and mechanical injury.

Q. 4: Give reasons for our dismal performance in export of nursery products. 10.0

Q. 5: For getting higher price of vegetable nursery material what should we do? 5.0

Q. 6: Write the common ways of making contact with costomer. 5.0

Q. 7: Write the information that must be printed on label. 5.0
Q.1  Explain in detail raising of vegetable seedlings in different types of containers. (07.00)

OR

Q.1  Explain in brief Plug tray nursery with its Benefits

Q.2  Explain in detail different methods of sowing used in seedlings preparation (05.00)

Q.3  Briefly explain importance of nursery (05.00)

Q.4  Write short note (ANY-FOUR) (08.00)

(1) Characteristics of good media (3) Selection of site
(2) Soil solarisation (4) Seed cover
(5) Hardening in Vegetable seedlings

Q.5  Answer in short (ANY-FIVE) (10.00)

(1) Enlist the different type of media used for raising seedlings
(2) Control measures for leaf curl disease in seedling
(3) Why width of nursery beds is not more than 1-1.5 m?
(4) Why thinning is essential in vegetable seedling?
(5) Enlist the vegetable crops which are not require nursery
(6) Control measures for leaf eating caterpillar in seedling
Q.6 Write the True and False

(1) Pink brinjal is denotes as Surti Ravaiya  
(2) Damping off is caused by nematodes.  
(3) Phorat 10G is applied as foliar spray in vegetable seedling  
(4) Seed should be treated before sowing with carbofuran 3G @ 2-3g per kg seed.  
(5) Line sowing method of seed sowing is more suitable for vegetable seedling preparation as broadcasting method.

Q.7 Match the following

(1) Knolkhol (a) 75-100 m²  
(2) Brinjal (b) 4-5 days  
(3) Onion (c) 3 days  
(4) Chinese Cabbage (d) 150 m²  
(5) Lattuce (e) 8-10 days  
(6) Broccoli (f) 200 m²  
(7) Tomato (g) 150-200 m²  
(8) Brussels sprouts (h) 3-5 days  
(9) Early cauliflower (i) 500 m²  
(10) Sorrel (j) 3-4 days  

#####################
I. Fill in the blanks. (05)

1. 20 ppm NAA means ---------------- quantity of NAA in 1 litre of water.
2. Plant population per 1000 m² is ----------------, if the crop geometry is 45 X 30 cm.
3. The unit of EC is ----------------.
4. ---------------- is dose of 4-CPAA for fruit setting in indeterminate tomato.
5. Botanical name of tomato is -----------------.

II. Define the followings. (Any five) (05)

1. Topping
2. Parthenocarpy
3. Pollination
4. Monoecious
5. Vertical farming
6. Thinning
7. Anthesis

III. Write short notes (Any six). (15)

1. Procedure to take soil sample for analysis.
2. Use of vegetative propagation under protected culture.
3. Role of pollinators under protected cultivation.
4. Different methods of training in capsicum.
5. Method to get good fruit set in tomato under high humidity conditions.
6. Maturity indices in tomato.
7. IPM strategies for sucking pests in NVPH.

IV. Write in detail (Any three). (15)

2. Different steps for soil sterilization under greenhouse conditions.
3. Common diseases under protected culture and their control.
4. Precautions to be adopted during training and pruning in tomato crop.

V. Attempt any one of the followings. (10)

1. Complete packages of practices for tomato cultivation under protected conditions.
2. Complete packages of practices for cucumber cultivation under protected conditions.
Q.1 Fill in the blanks.
1. As per ISI recommendation the brinjal fruits are graded into three grades named as ________, ________, & ________.
2. Delaying in harvesting does not cause deterioration in quality for vegetable crops like ________ & ________.
3. ________ chemical is used for pre-harvest spray for maintaining keeping quality of onion bulb.
4. Tomato should be harvested for distant market at ________ stage while for local market at ________ stage.

Q.2 Define the following terms.
(1) Harvesting (2) Packing (3) Marketing (4) Curing (5) Auction Market (6) Grading (7) Processing market (8) Blanching (9) Trimming (10) Mandies

Q.3 Do as Directed (any five)
1. Enlist the major function involved in marketing.
2. Write the merits of harvesting at right stage.
3. Enlist the factors affecting quality of vegetables.
4. Write the merits of packaging.
5. Mention important points regarding present scenario of vegetable marketing.
6. Write harvesting stages for Chilies, Tomato and Okra.
7. Write the quality parameters for proper harvesting of vegetables.

Q.4 Which are the major Channels of Vegetable Marketing? Discuss them briefly.

Q.5 Discuss the factors affecting harvesting of Vegetable Crops.

Q.6 Tick the following sentences as True or False.
1. Early harvesting is possible for vegetables when there is a fear of thefts of damage by animals.
2. Marketing is not the customer oriented process.
3. Muskmelon and watermelon are always harvested at full maturity stage when sugar content is at maximum for both local and distance market.
4. Vegetable crops should always harvest during early morning or during evening hours.
5. Delay harvesting is but natural under unusual circumstances like fall in market price or migration of labour.
NAVSARI AGRICULTURAL UNIVERSITY

NAVSARI

VIII SEMESTER B. Sc. (Hons.) Horticulture END EXAMINATION (REGULAR)

COURSE NO. HWE. 8.2 TITLE: University farms (JAU), farmers field and visit to horticulture based industries of Saurashtra region (0+4)

DATE: 16.06.2015
DAY: Tuesday

MARKS: 50

Q.1 Comment on the following (Any TEN) 10.0
Talaja Red, Bulb to seed method, Ganesh, in situ grafting in mango, Agathi, Dioecious, HDP, Emasculation, Pre-cooling, Fertigation, Dormancy, ZECC.

Q.2 Reply as directed (Any FIVE) 10.0
1) Enlist the varieties of jamun, fig, custard apple, papaya and drumstick planted at Madhdi baug, JAU, Junagadh.
2) Mango, banana, arecanut plantation was destroyed at FRS, Mahuva, Why?
3) Enlist mango hybrids released from AES, Paria with their parents.
4) Write in brief about Elite farm located at FRS, Mahuva.
5) Write botanical name, family and uses of Mahogini tree which you have observed at Madhdi baug, JAU, Junagadh.
6) Enlist the varieties and hybrids of coconut released from FRS, Mangrol with their important characters.

Q.3 Answer the following (Any FIVE) 20.0
1. Explain in detail about hybridization work carried out in coconut at FRS, Mangrol.
2. Write detail procedure for onion processing which you have visited during your RAWE visit.
3. Describe propagation methods of sapota.
4. Brief account of Lalbaug or Sakkarbaug, JAU, Junagadh.
5. Describe about value addition in banana.
6. Discuss procedure for rejuvenation in old orchards of mango.

Q.4 Discuss about improved package of practices of mango. 10.0

OR

Write down the full form of following. 10.0

1. AICRP
2. ATIC
3. IARI
4. IIHR
5. NHB
6. HWE
7. CPCRI
8. NAA
9. ICAR
10. SSK

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