

Scheme of Practical Examination

HORTICULTURE (KA, KB, KC)

Subject code and Name

KA=Vegetable Production,
KB=Floriculture and Landscaping,
KC =Post Harvest Technology

General information about practical Examination

1) The Practical Examination and evaluation of each paper (paper I, II, III) is as given below.

Total Marks allowed for evaluation	Marks for Practical Examination	Term Work	Project Work	OJT	Educational Visit	Total Marks
120	80	10	10	10	10	200

2) The batch for practical examination will be of 20 students.

3) Duration of the practical examination for each paper (Paper I, II, III) will be three hours.

4) The examiners may form small groups of students for conducting practical as per requirement.

Instructions to the Head of Institution

- 1) Practical examination will be conducted strictly as per the programme / instructions sent by the Board.
- 2) The detailed programme of practical Examination including time table, batches of students, journals etc. must be kept ready as per Boards instructions.
- 3) The students should be informed to bring scale, practical journals, visit reports project reports and OJT dairy.
- 4) It will be entire responsibility of the Head of the institution to see that all the preliminary formalities and necessary arrangements for the examinations should be completed well in advance in consultation with the concerned internal examiner to secure smooth conduct of examination.
- 5) The list of materials / equipments required for practical examination is given in the scheme of practical examination.
- 6) In case of the external examiner appointed by HSC Board fails to attend the examination, then the Head of the Institution should appoint the examiner from nearby institute and if no examiner is available, then a teacher from the institute who is in touch with the subject be appointed.
- 7) External examiner should submit the entire examination report to board office immediately after the completion of examination. This report should be confidential and must contain the experimental changes if any, co-operation from internal examiner, students and Head of the Institution.

Instructions to the Examiners

- 1) Internal Examiner should make all the necessary arrangement for smooth conduct of Practical Examination.
- 2) The external examiner should inspect all the arrangements, one day prior to the actual date of examination.
- 3) The external examiner and internal examiner should jointly prepare the question paper according to the scheme of examination provided by HSC Board.
- 4) Both the examiners should jointly assess the exercise performed by the student.
- 5) Both the examiners should jointly assess the Project work, Term work, OJT and educational visit records and journals.
- 6) The examiners should fill the mark sheets and related record accordingly.
- 7) Duely signed mark sheets and other examination record in sealed envelopes should be handed over to the head of the institution immediately.

Instructions to the Candidates.

- 1) Students for examination should be present half an hour before commencement of the examination and report themselves to the internal examiner.
- 2) They should have Pen, Pencil, Journal, Scale, Project book etc.
- 3) They should write only on the answer book which is supplied by HSC Board.
- 4) They should ascertain whether they have completed all items before leaving the place of examination.
- 5) Every student is expected to complete his journals in all respect and get certification from Head of the institute.
- 6) Students should bring their Visit report, Project book and term work at the time of Practical Examination.

Scheme of Practical Examination HORTICULTURE (KA, KB, KC)

Nature of questions, Scheme of marking & Time allotment

Time 3 hrs.

Marks 80

Q. No.	Nature of question	Marks	Time (min)
1	Spotting / Identification a) Give ten spots carrying 2 marks for each spot b) 1 Mark for identification and 1 mark for correct answer of related question. c) The question at each spot should be such that it can be answered in one or two words or number or in one sentence	20	20
2	Solve Any Two a) The students should be asked to solve any two out of three sub-questions given to them. b) The question may be the practical or mathematical calculations related to practical syllabus	10	20
3	Practical exercise a)The examiner should observe the skill and correctness of students while he / she - performs an experiment. b) The Students are expected to write Procedure, draw & label the diagrams record relevant observations, do mathematical calculations & express result & conclusion whenever necessary.	15	60
4	Practical exercise (any one) a) The examiner should observe the skill & correctness of students while he/she - Performs an experiment. b) The Students are expected to write Procedure, draw & label the diagrams, record relevant observations, do mathematical calculations & express result & conclusion wherever necessary	20	60
5	Viva - Voce a) Ask minimum Five questions. b) It should be taken during the conduct of Practical exercise.	05	10
6	Journal Complete and Certified journal is required. Neatness, cleanliness, correct diagrams and observation record is essential.	10	10
	Total	80	180

Scheme of Practical Examination

HORTICULTURE

Paper I - Vegetable Production (KA)

List of Material

List of Material and equipments required for conducting Practical & Examinations

- 1) Necessary equipments should be kept ready at the time of Practical Examination.
- 2) Small quantity of each vegetable seed sample should be made available
- 3) The Particular Vegetable plant part such as fruits, Vines, Leaves, Flowers or seedlings should be kept ready.
- 4) Necessary manures and fertilizer samples should be made available at the time of examination.
- 5) Necessary insecticides, chemicals and fungicides should be made available at the time of Practical examination.
- 6) Tools of Land preparation, buckets, Pots, sprayers etc.

Key for Practical Examination (English Version)

Time : 3 hrs

Marks 80

Q. No 1. Spotting

20

A) One sample from each group should be kept for spotting - One mark for each specimen (Seed or any Plant part)

1. Cucurbitaceous Vegetables.

- a) Bitter gourd. b) Ridge gourd. c) Pumpkin. d) cucumber e) water melon
- f) Snakegourd g) Bottle gourd h) Muskmelon.

2. Solanaceous Vegetables.

- a) Tomato b) Brinjal c) Chilli d) Pepper

3. Cole crops

- a) Cabbage b) Cauliflower c) Knol-Knol

4. Root Vegetables.

- a) Carrot b) Raddish c) Beet d) Turnip

5 Bulb crops/ Tuber crops

- a) Onion b) Garlic c) Potato d) Sweet Potato

6. Leafy Vegetables.

- a) Fenugreek b) Coriander c) Spinach d) Amaranthus e) Chakwat f) Green Sorrel

7. Pod Vegetables.

- a) Pea b) Cow pea c) Cluster bean d) French bean e) Indian bean

8. Perennial and other Vegetables.

- a) Ivy gourd b) yam c) Drumstick d) Asparagus e) Okra

9. Tools and equipments.

10. Fertilizers, Manures, Insecticides, Fungicides

B) One sub question for each spot - one mark for each sub question

Q. No 2. Solve any two 10

Examiners should give any three questions and ask to solve any two of them.

1. Calculate the quantity of urea required (Crop, area and dose will be given by the examiner)
2. Calculate the quantity of single super phosphate (Crop, area and dose will be given by the examiner)
3. Calculate the quantity of Muriate of potash.(Crop, area and dose will be given by the examiner)
4. Calculate number of plants (Seedlings) required for planting (Give different crop, different area and different spacing)
5. Calculate Seed rate for the given crop.
6. Find out water requirement of vegetable crop and estimate requirements for micro irrigation.

Q. No 3 Practical exercise 15

Examiners should allot one practical exercise for a group of five students.

- | | |
|--------------------------------------------------|----|
| A) Demonstration-Skill and Correctness ----- | 10 |
| B) Writing of procedure in brief ----- | 03 |
| C) Questions related to the practical work ----- | 02 |

1. Preparation of Flat bed.
2. Preparation of ridges and furrows.
3. Preparation of raised bed.
4. Preparation of ring and basin.
5. Preparation of broad ridges and long furrows.
6. Sow the seed in Pro Trays for raising seedlings.

Q. NO. 4 Practical Exercise 20

Examiners should select any four or five exercises from the following and all of any one to each student randomly.

- | | |
|---------------------------------------------------|----|
| A) Demonstration-Skill and Correctness----- | 12 |
| B) Importance, features or Process in brief ----- | 05 |
| C) Ask one question----- | 03 |

1. Sowing of given seed.
2. Seed treatment
3. Demonstration of removal of seedlings from bed
4. Demonstration of treating Seedlings
5. Demonstration of transplanting
6. Fertilizer application
7. Staking/Training of Plants
8. Demonstration of earthing up
9. Demonstration of Spraying chemicals.
10. Extraction of Seed
11. Demonstration of blanching
12. Preparation and application of starter
13. Selection and grading of Vegetables for Marketing .
14. Packing of Vegetables for Marketing.
15. Demonstration of Harvesting.
16. Identification of Pests.
17. Identification of Diseases .

18. Installation of micro irrigation system.
19. Design and layout of model kitchen garden.
20. Preparation plan for continuous supply of vegetable throughout the year.
21. Demonstration of any one operation in green house.

Q. No. 5 Viva - Voce

05

Ask any Five questions to each students related to the syllabus. Viva may be conducted during Practical work or separately.

Q. No. 6 Practical Journal

10

The Practical Journal should be complete in all respect.

Scheme of Practical Examination HORTICULTURE

Paper II - Floriculture and Landscaping_(KB)

List of Material

List of materials and equipments required for conducting Practical Examination.

1. Necessary equipments and garden tools should be kept ready at the time of Practical Examination.
2. Small quantity of Necessary manures and fertilizers should be made available at the time of examination.
3. Necessary insecticides, chemicals and fungicides should be made available at the time of Practical Examination.
4. If there is no availability of ornamental Plants, the Seeds or Plant parts should be kept ready for Practical Examination.
5. Different root stocks, Scions, Polythene bags, Strips, garden pots etc.

Paper II - Floriculture and Landscaping_(KB)

Key for Practical Examination (English Version)

Time :- 3 hrs

Marks - 80

Q. No.1 Spotting

20

A) One sample from each group should be kept for spotting - One mark for each specimen (Seed or any Plant part)

1. Tools and equipments.

- i) Budding Knife. ii) Grafting Knife. iii) Secateurs. iv) Hoe v) Dibbler.
- vi) Pick Axe. vii) Watering can. viii) Sprayer. ix) Hedge shear. x) Lawn sprinkler (any other garden tool)

2. Bulbous Plants.

- i) Gladiolus. ii) Tube rose. iii) Asparagus. iv) Cana. v) Dahlia.
- vi) Ornamental Tapioka.

3. Annual flowering plant

- i) Marigold. ii) Aster. iii) Gaillardia. iv) Daizy. v) Zinia. vi) Salvia vii) Plox.
- (Any other available sample.)

4. Perennial flowering plants

- i) Parijatak. ii) Tagar. iii) Hibiscus. iv) Rose. v) Jasmine. vi) Chrysanthemum.
- (Any other available sample.)

5. Ornamental Foliage plants.

- i) Diffenbakia. ii) Aglonema. iii) Croton iv) Eranthemum. v) Acalypha. vi) Duranta
- select any other from available plants.

6. Trees (Different Categories)

- i) Banyan tree. ii) Peltophorum. iii) Delonix. iv) Jakaranda. v) Ashok. vi) Bauhinia.
- vii) Fountain tree. viii) Palas. Any other available sample.

7. Climbers and Creepers.

- i) Bouganvillea. ii) Thumbergia. iii) Jasmin. iv) Wall creeper. v) Clerodendron.
 - vi) Rangoon creeper. vii) Allamenda. viii) Passion flower.
- (Any other available sample.)

8. Shrubs.

- i) Exhora. ii) Hamelia. iii) Tecoma. iv) Murraya. v) Thuja. vi) Caliantra.
Any other available sample.

9. Material used in garden / Green house

- i) Rooting media. ii) Shade Net. iii) Polythene bag, sheet, strip. iv) Pots. v) Moss.
vi) Stones decorative. vii) Paves. viii) Sand.
Any other available sample.

10. Agro chemicals

- Insecticides, fungicides, fertilizers, growth hormones.
(Any available sample.)

B) One sub question for each spot - one mark for each sub question

Q. No. 2 Solve any two.

10

Examiners should give any three questions and ask to solve any two of them..

1. Calculate the quantity soil, compost, sand for filling pits for lawn.
(Give different sizes and proportion of material.)
2. Calculate the quantity of material required for filling pots of different sizes.
(Give different sizes of pots, different proportion of material and number of pots.)
3. Calculate the number of plants, corms, bulbs required for planting.
(Give different crops, different area, different spacing)
4. Write in brief about care and storage of corms/bulbs
5. Write in brief about design and development of carpet bed / arches / flower beds /
ponds / rockery / fountain.
6. Write in brief about landscape plan.

Q. No. 3. Practical Exercise

15

Examiners should allot one practical exercise for a group of five students.

- | | |
|----------------------------------------------|----|
| A) Demonstration-Skill and Correctness ----- | 10 |
| B) writing of Procedure in brief ----- | 03 |
| C) Asking questions related to practical .-- | 02 |

1. Preparation of cutting.
2. Preparation of land for planting seedlings / bulbs / corms
3. Preparation of land for lawn and planting of grasses.
4. Demonstration of eye budding in rose.
5. Repotting of bonsai plant.
6. Preparation of layering.
7. Preparation of Grafting.

Q. No. 4. Practical Exercise	20
Examiners should select any four or five exercises from the following and all of any one to each student randomly.	
A) Demonstration-Skill and Correctness -----	12
B) Importance & features or brief procedure, of exercise ----	05
C) Ask one question related to practical -----	03
1. Preparation of moss stick.	
2. Preparation of Potting mixture.	
3. Filling of Pots with Potting mixture.	
4. Pruning of hedges.	
5. Sowing of seeds in trays.	
6. Preparation of bouquet.	
7. Preparation of garland.	
8. Demonstration of Pinching.	
9. Demonstration of de Suckering.	
10. Demonstration of disbudding.	
11. Planting of ornamental Plant.	
12. Grading and packing of flowers.	
13. Selection of Corms / bulbs / rhizomes for planting.	
14. Reporting of ornamental Plants.	
15. Filling of Polythene bags.	
16. Treatment to flowers.	
17. Selection and planting of trees for Bonsai.	
Q. No. 5 Viva - Voce	05
Ask Five questions to each student related to the syllabus.	
Viva may be conducted during Practical work Or Separately.	
Q. NO. 6 Practical Journal	10
The practical journal should be complete in all respect.	

Scheme of Practical Examination
HORTICULTURE
Paper III - Post Harvest Technology (KC)
List of Material

List of material and equipments required for conducting practical examination.

1. Necessary equipments for processing purpose should be kept ready at the time of practical examination.
2. Required quantity of fruits / vegetables should be kept ready before examination.
3. Necessary Fruit / Vegetable preserved product samples should be kept ready for identification purpose.
4. Essential chemicals, Spices, Condiments, Preservatives, additives and other raw material should be kept ready for examination.
5. Necessary arrangements for required Fuel / electricity supply should be done.

Paper III - Post Harvest Technology (KC)

Key for Practical Examination (English Version)

Time : 3hrs

Marks 80

Q. No. 1. Spotting

20

A) One sample from each group should be kept for spotting - One mark for each specimen

1. Mild preservatives.

- i) Sugar ii) Salt. iii) Citric acid. iv) Vinegar. v) Edible Oil

2. Chemicals.

- i) KMS. ii) Sodium Benzoate. iii) Pectin. vi) Colours. v) Essence

3. Equipments used for extraction at juice / Preparation of Product

- i) Knife. ii) Peelers. iii) Pitting Knife. iv) Sieves. v) Juicers. vi) Squeezers.

4. Equipments used for sealing

- i) Crown Corking machine. ii) Cap sealing machine. iii) Pouch sealing machine.

5. Fruits.

- i) Mango ii) Apple. iii) Orange. iv) Lime. v) Pineapple. vi) Pomegranate.
(Any available fruit.)

6 Vegetables.

- i) Onion. ii) Potato. iii) Tomato. iv) Leafy vegetables. v) Cabbage. vi) Pea.
(Any available vegetable)

7. Any Preserved Product.

- i) Jam. ii) Jelly. iii) Ketchup. iv) Syrup. v) Squash. Any available product.

8. Containers.

- i) Tin Can. ii) Glass Jar. iii) Glass bottle. iv) Tetra Pack. v) Poly Pack. vi) Paper container

9. Defective Products. Any available product.

10. Other equipments / materials.

- i) Hand refractometer. ii) Hydrometer. iii) Salinometer. iv) glasswear. Any other available materials.

B) One sub question for each spot - one mark for each sub question

Q. No. 2 Solve any two	10
Examiners should give any three questions and ask to solve any two of them.	
1. Estimate quantity of sugar, citric acid, water for preparation of squash form given fruit. (Give different fruits)	
2. Estimate the amount of sugar for adjusting sugar syrup.	
3. Estimate the required quantity of material for preparation of given product according to standard recipe.	
4. Write in brief about waste utilization in fruits.	
5. Write in brief about waste utilization in vegetables.	
6. Write down procedure of drying of leafy / pod vegetables.	
7. Write down the procedure of Papain extraction from Papaya.	
8. Write down the procedure of Candy Making.	
9. Write down the procedure of Dehydration of fruits..	
 Q. No. 3. Practical Exercise	 15
Examiners should allot one practical exercise for a group of five students.	
A) Demonstration - -Skill and Correctness	10
B) Writing of procedure in brief	03
C) Ask question related to practical work	02
1. Preparation of jam from given fruit	
2. Preparation of squash from given fruit	
3. Preparation of Ketchup/ Sauce	
4. Preparation of Preserve	
5. Preparation of Cordial.	
6. Preparation of pickles from given material	
7. Preparation of Jelly.	
8. Preparation of Santra marmalade.	
9. Preparation of Tooty Fruity.	
 Q.NO. 4 Practical Exercise	 20
Examiners should select any four or five exercises from the following and all of any one to each student randomly.	
A) Demonstration-Skill and Correctness	12
B) Importance, features or procedure of demonstration	05
C) Ask one question related to practical	03
1. Estimation of T.S.S. of given fruit/product.	
2. Estimation of acidity of given fruit / product.	
3. Demonstration of test for estimation of Pectin	
4. Demonstration of blanching.	
5. Grading of fruits according to maturity and quality.	
6. Preparation of R.T.S. from given material	
7. Demonstration of hand peeling.	
8. Demonstration of extraction of juice from given fruit.	
9. Preparation of Sugar Syrup of given strength.	
10. Preparation of brine solution.	
11. Demonstration of crown corking.	
12. Preparation of <i>Gulkand</i> / Rose water.	
13. Sorting of Mature and immature fruits from the given lot.	
 Q.No. 5 Viva - Voce	 05
Ask Five questions to each students related to the Syllabus.	
Viva may be conducted during practical work or otherwise seperately.	
 Q.No. 6. Practical Journal	 10
The Practical Journal should be complete in all respect.	

HORTICULTURE (KA, KB, KC)

Guidelines for Assessing Term Work, Project Work, OJT & Educational Visit.

Term Work 10

Points to be considered for Term Work.

- Attendance of Students.
- Performance of the student in Regular Practical.
- Performance in school level tests and tutorials.

Project Work 10

- Observe the project work done by the student.
- Observe the copy of project report.
- Assess the project for skill and neatness.
- Find whether the project work is useful for the student's development in future.

O J T (On the Job Training) 10

- Organise the OJT programme according to information made available from D. V. E. & T. officer.
- Observe OJT Record accordingly.
- Marks should be given by considering OJT diary, certificate and record maintained by student.

Educational Visit 10

- Attendance of student for visit.
- Visit record maintained by the institution.
- Visit reports filled by the student.