

Scheme of Practical Examination

Crop Science (LA, LB, LC)

Subject code and Name

Paper - I (LA) Crop and Seed Production Part - II

Paper - II (LB) Applied Agriculture

Paper - III (LC) Farm Management, Marketing and Agroforestry.

General information about practical examination.

1. The practical examination and evaluation scheme of each paper (Paper I, II, III) is as given below

Total marks Allotted for Practical evaluation	Marks for Practical examination	Term Work	Project Work	O J T	Educational visits
120	80	10	10	10	10

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

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

4. The examiners may form small groups of students for carrying practical exercise as per requirement.

Scheme for practical examination

Crop Science (LA, LB, LC)

Instructions to the Head of the Institution

1. Practical examination will be conducted strictly as per the programme/instructions sent by board.
2. The detail programme of practical examination including time table, batches of students, journal, etc. must be kept ready as per board's instructions.
3. The students should be informed to bring foot scale, notebook, practical journal, project reports, etc.
4. It will be entire responsibility of the Head of the Institution while the practical examination is being conducted to see that all the preliminary formalities and necessary arrangements for the examination are 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, the external examiner appointed by H.S.C. Board fails to attend, the examination then the Head of Institution should appoint the examiner from the nearby institute who is having knowledge of the subject.
7. External examiner should submit the entire examination report to the board office immediately after the completion of examination. This report should be confidential and must contain the experimental changes if any, cooperation from internal examiners, students and Head of Institution.

Scheme for practical examination
Crop Science (LA, LB, LC)
Instructions to the Examiners

1. Internal examiner should make all the necessary arrangements 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 examiners and internal examiner should jointly prepare the question paper according to the scheme of examination provided by H.S.C. Board.
4. Both the examiners should jointly assess the exercise done by the students and answer books.
5. Both the examiners should jointly assess the project work, term work, OJT and visit record of journals.
6. The examiners should fill the mark sheet accordingly.
7. Duly signed mark sheets and other material should be handed over to the Head of the Institution immediately.

Scheme for practical examination
Crop Science (LA, LB, LC)
Instructions to the Candidates

1. The students for examination should be present half an hour before the starting of the examination and report themselves to the internal examiner.
2. They should have pen, pencil, journal, foot scale, project report, etc.
3. They should write on the answer book only which is given to them.
4. Before leaving the place of examination, they should ascertain whether they have completed all attempts.
5. Every student is expected to complete his journal in all respect and get certified from the Head of the Institution.
6. Students should bring their visit report, project work and term work at the time of practical examination.

Scheme for practical examination Crop Science (LA, LB, LC)

Paper – I (LA) Crop and Seed Production Part - II

Paper - II (LB) Applied Agriculture

Paper - III (LC) Farm Management, Marketing and Agroforestry.

Nature of questions, scheme of marking and time allotment

Marks : 80

Time : 3 hrs.

Q. No.	Nature of question	Marks	Time (min)
1	Identification a) Arrange 10 spots each carrying 2 marks b) For each spot give 1 mark for identification and 1 mark for its sub question c) The sub question should be such that, it can be answered in one or two words / number or one sentence	20	20
2	Solve any two a) Student should be asked to solve any two out of three questions b) The question may be theoretical or mathematical related to practical.	10	20
3	Practical exercise / Broad Answer Question (any one) 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 and label the diagram, record relevant observations, do mathematical calculations and express results and conclusion wherever necessary.	15	60
4	Practical exercise (any one) 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 and label the diagram, record relevant observations, do mathematical calculations and express results and conclusion wherever necessary.	20	60
5	Viva-voce a) Ask minimum 5 questions b) It should be taken during the conduct of practical exercise	05	10
6	Journal a) Complete and certified journal is required b) Neatness, cleanliness, correct diagrams and observation records is essential.	10	10
	Total	80	180

Scheme for practical examination

Crop Science

Paper - I: Crop and Seed Production Part - II (LA)

List of Material

1. Specimens of plant and plant parts.
2. Preparatory tillage implements and their parts.
3. Intercultural implements and their parts.
4. Chemical fertilizers.
5. FYM, Compost.
6. Oil cakes.
7. Specimens of insects.
8. Specimens of diseases.
9. Insecticides.
- 10 Fungicides.
11. Herbicides.
12. Rhizobium culture.
13. Azotobacter
14. Bullock pair with implements.
15. Flowers.
16. Dissection box.
17. Seed.
18. Tools and equipments for harvesting, threshing.
19. Groundnut de-Sheller.
20. Groundnut pods
- 21 Required chemical

The quantity of material should be as per requirement (based on the number of students and nature of question paper to be set by the examiners)

Scheme for practical examination

Crop Science

Paper - I : Crop and Seed Production Part - II (LA)

Key for Practical Examination (English Version)

Time : 3 hrs

Marks : 80

Q. No. 1. Identification

20

a) The examiners should arrange any 10 specimens from the following list.

(One mark for each specimen)

Seed, plant or plant parts, chemical fertilizers, organic manures, bio fertilizers, insecticides, fungicides, herbicides, equipments, model of implements or their parts, specimens of insect pest and diseases. (Preferably keep one specimen from each group)

b) Sub question for each spotting (One mark for each sub question)

Q. No. 2. Solve any two

10

The examiners should give three problems, one from each of following three groups and students should be asked to solve any two out of them.

a) Calculation of actual quantity of fertilizer required for crop for particular area when dose of nutrient is given eg. Calculate the actual quantity of fertilizer required for 1 ha. Bajra crop when

1) Dose of nutrient is 100 kg. N, 50 kg. P, 40 kg. K/ha.

2) The fertilizers available are i) Urea, ii) Single Super Phosphate & iii) Muriate of Potash

Instructions - The examiners should prepare a problem by choosing different crop, different area and dose of nutrient.

b) Calculation of plant population e.g. Calculate the plant population for 1 ha. Jowar crop when spacing is 45 x 15 cm.

Instructions - The examiners should prepare a problem by selecting different figures for total area and spacing for different crop.

c) Calculation of seed rate e.g. Calculate seed rate for sowing 5 ha. Sunflower crop - from following information.

i) Germination = 95 %

ii) Physical purity = 90 %

iii) Test weight of seed = 65 gm

iv) Spacing = 60 X 20 cm

Instructions - The examiners should prepare a problem by choosing different crops and different figures for above aspects.

Q. No. 3. Practical exercise (Any one)

15

Examiners may allot any one exercise from the following.

A group of students may be formed if required.

a) Dissection of any one flower of crop plant included in syllabus.

Distribution of marks:

i) Proper dissection

08

ii) Floral diagram

05

iii) Floral formula

02

b) Emasculation and pollination of Cotton bud.

Distribution of marks

i) Demonstration - skill & correctness

10

ii) Theoretical procedure

05

a) Emasculation	
b) Pollination	
c) Artificial Pollination in Sunflower	
Distribution of marks	
i) Demonstration - skill & correctness	10
ii) Theoretical procedure and significance	05
d) Seed treatment	
Any one seed treatment either with insecticide or fungicide	
Distribution of marks	
i) Demonstration - skill & correctness	10
ii) Theoretical procedure and object	05
e) Rhizobium inoculation to groundnut or Azotobacter treatment for cereals	
Distribution of marks	
i) Demonstration - skill & correctness	10
ii) Theoretical procedure and object	05
Q. No. 4. Practical exercise (Any one)	20
Any one exercise from the following should be given to students or group of students.	
a) Seed bed preparation for any one crop included in syllabus (Any one bed)	
Distribution of marks	
i) Demonstration - skill & correctness	10
ii) Diagram and labeling with size	10
b) Tying and handling of bullock driven implements	
Distribution of marks	
i) Tying	10
ii) Handling	10
c) Deshelling of Groundnut	
Distribution of marks	
i) Demonstration - skill & correctness	10
ii) Procedure and calculation of shelling %	10
d) Layout Preparation for Sugarcane (Any one)	
Distribution of marks	
i) Demonstration - skill & correctness	10
ii) Description	10
e) De-linting of cotton seed	
Distribution of marks	
i) Demonstration - skill & correctness	10
ii) Theoretical procedure and object	10
Q. No. 5. Viva - Voce	05
a) Minimum five questions should be asked	
b) It should be taken during the conduct of practical exercise	
Q. No. 6. Journal	10
Journal should be complete in all respect.	

Scheme for practical examination

Crop Science

Paper - II (LB) : Applied Agriculture

List of Material

1. Garden tools & equipments
2. Tools and equipments for nursery, poly house and landscaping
3. Tools & equipments for apiculture and mushroom production.
4. Tools & equipments for vermicomposting.
5. Seed processing and seed testing equipments.
6. Insecticides, fungicides, herbicides and fertilizer samples.
7. Forms and records to be maintained in seed processing plant.
8. Forms and records to be maintained in seed testing laboratory.
9. Forms and records to be maintained in agro service centre.

Scheme for practical examination

Crop Science

Paper - II : Applied Agriculture (LB)

Key for Practical Examination (English Version)

Time : 3 hrs

Marks : 80

Q. No. 1 Identification

20

a) The examiners should arrange any 10 specimens from the following list.

(One mark for each specimen)

Garden tools & equipments

Tools and equipments for nursery, poly house , landscaping, apiculture, mushroom production and vermi-composting.

Seed processing and seed testing equipments.

Insecticides, fungicides, herbicides and fertilizer samples.

Forms and records to be maintained in seed processing plant, seed testing laboratory and agro service centre.

b) Sub question for each spotting. (One mark for each sub question)

Q. No. 2. Solve any two.

10

The examiners should give three questions, one from each of the following groups and students should be asked to solve any two out of them.

A) Calculation of percent physical purity of seed e.g. Determine the percent physical purity of paddy seed from the following information.

i) Weight of working sample = 40 gm.

ii) Weight of pure seed = 38.62 gm.

Instructions:- Examiners should prepare a problem by choosing different figures of weight for different crops.

B) Calculation of seed germination percentage.

eg. Calculate germination percentage of paddy sample by using following information.

Replication	Total no of Seed	No of germinated seed	No of ungerminated seed
1	100	82	18
2	100	85	15
3	100	88	12
4	100	86	14

Instructions - Examiners should prepare problems by taking different figures for germinated seeds, ungerminated seeds and total number of seeds for different crops.

C) Any one theoretical question.

Examiners should prepare and give any one question from the following information.

1. Selection of site for nursery.
2. Cares of mother plants.
3. Question regarding any one operation in poly house.
4. Question regarding any one type of poly house.
5. Types of soil mixtures for potting.
6. Procedure of vermi composting.
7. Processing sequence for complete cleaning of seeds of any one crop.
8. Types of layouts of seed processing plant.
9. Staffing pattern for seed testing laboratory.
10. List of equipments needed for different types of seed tests. (Any one test)
11. Cares to be taken while preparing vermi compost.
12. Information regarding Mushroom production technique.
13. Benefits of landscaping.
14. Objectives of apiculture.
15. Types of agricultural labour.
16. Cares to be taken while purchasing agricultural inputs.
17. List of plants / crops suitable for apiculture.

Q .No. 3. Broad answered question (Any one)

15

Examiners should prepare and give any one question from the following information.

1. Question regarding drawing processing sequence for complete cleaning of seed of any two crops.
2. Procedure of preparation of vermicompost.
3. Question regarding planning and designing the new seed processing plant.
4. Layout and design of seed testing laboratory.
5. Guidelines for management of seed testing work.
6. Report of visit to seed processing plant, dal / Oil mill
7. Report of visit to seed testing laboratory
8. Procedure for establishing Agro service centre.
9. Forms and records to be maintained in the seed processing plant or seed testing laboratory.
10. Information about organizational farming.
11. Planning and layout of nursery.
12. Objectives and features of apiculture.
13. Information regarding different products of apiculture.
14. Information regarding steps of mushroom production.
15. Report of visit to Agro service centre
16. Measures of improving labour efficiency.

Q. No. 4. Practical exercise (Any one).	20
Examiners should give any one exercise from the following	
A group of students may be formed if necessary.	
A. Preparation of nursery bed.	
i) Demonstration - Skill and correctness	10
ii) Theoretical procedure.	10
 B. Handling and use of any one seed processing equipment.	
i) Demonstration - skill and correctness	10
ii) Information and use of equipments	10
 C. Preparation of Mushroom bed	
i) Demonstration - skill and correctness	10
ii) Theoretical procedure.	10
 D. Collection of vermicompost from the bed	
i) Demonstration- skill and correctness	10
ii) Theoretical procedure.	10
 E. Preparation of potting mixture for cultivation of rose & gerbera in poly house	
i) Demonstration - skill and correctness	10
ii) Theoretical procedure.	10
 F. Filling of pot or trenches for cultivation rose or gerbera in polyhouse	
i) Demonstration - skill and correctness	10
ii) Theoretical procedure.	10
 Q. No. 5. Viva voce	05
a) Ask minimum five questions	
b) It should be taken during the conduct of practical examination	
 Q. NO. 6. Journal	10
Journal should be complete in all respect.	

Scheme for practical examination

Crop Science

Paper - III (LC): Farm Management, Marketing and Agroforestry

List of Material

- i) Posters regarding variety, fertilizer, insecticide, fungicide, herbicide and cropping scheme.
- ii) Leaflets and pamphlets regarding varieties, fertilizers, insecticide, etc.
- iii) Hoardings on different aspects.
- iv) Farm records - Account book, bill book and different types of registers to be maintained on farm.
- v) Forms and records used in seed marketing / agro service centre.
- vi) Communication aids - Radio, taperecorder, T. V. Sets, VCP, VCR, Cellphone, etc.
- vii) Cloth bags(seed bags). Polythene bags, gunny bags, etc.
- viii) Different types of chart, invitation card, cell phone.
- ix) Computer devices (input, output, storage).
- x) Electrical letter board, air balloons and air letters.
- xi) Various requisites for preparation of leaflet, pamphlet, poster and invitation card.

Scheme for practical examination

Crop Science

Paper - III : Farm Management, Marketing and Agroforestry (LC)

Key for Practical Examination (English Version)

Time : 3 hrs.

Marks : 80

Q. No. 1. Identification.

20

A) Examiners should arrange any 10 specimens from the following list.
(One mark for each specimen)

Posters regarding variety, fertilizer, insecticide, fungicide, herbicide and cropping scheme.

Leaflets and pamphlets regarding varieties, fertilizers, insecticide, etc.

Hoardings on different aspects.

Farm records - Account book, bill book and different types of registers to be maintained on farm.

Forms and records used in seed marketing / agro service centre.

Communication aids - Radio, tape recorder, T. V. Sets, VCP, VCR, Cell phone, etc.

Cloth bags(seed bags). Polythene bags, gunny bags, etc.

Different types of chart, invitation card.

Computer devices.

Electrical letter board, air balloons and air letters.

Various requisites for preparation of Poster, leaflet, pamphlet and invitation card.

(Preferably keep one specimen from each group)

B) Sub question for each spotting. (One mark for each sub question)

Q.No. 2. Solve any two.

10

The examiners should prepare give any three short answer questions from the following information and students should be asked to solve any two out of them.

1. Definition of cropping scheme and crop rotation.
2. Characteristics of good cropping scheme.
3. Factors to be considered while selecting crop in cropping scheme.
4. Advantages of crop rotation.

5. Examples of crop rotation followed in Maharashtra.
6. Factors to be considered in planning crop rotation.
7. Definition of agricultural labour and labour efficiency.
8. Types of agricultural labour.
9. List of farm records.
10. Visit report of any one visit.
11. Advantages of farmer's day.
12. Cares to be taken while arranging farmer's day.
13. Additional expenses which farmer has to make in raising seed crop.
14. Additional expenses at the time of harvesting, drying and processing of seed.
15. Information regarding input costs affecting final marketing price of seed.
16. Importance of ware housing / Types of ware housing / Working of ware housing
17. Question regarding brief information / advantages / disadvantages of any one type of cropping system.
18. Functions of district industry centre.
19. Advantages and disadvantages of leaflet / pamphlet.
20. Advantages and disadvantages of poster.
21. Importance of hoarding / boards.

Q. No. 3. Practical exercise (Any one). 15

Examiners should allot any one exercise from the following.

- a) Preparation of poster.
- b) Preparation of leaflet
- c) Preparation of pamphlet.
- d) Preparation of invitation letter / circular letter

Q. No. 4. Practical exercise (Any one) 20

Examiners should allot any one exercise to the students from the following

- a) Handling and use of tape-recorded / radio / Television set.
- b) Handling and use of computer & use of C.D., D.V.D., use of internet.
- c) Handling and use of cell phone and use of internet.
- d) Group discussion on various aspects.
- e) Preparation of cropping scheme.

Q.No. 5. Viva voce 05

- a) Ask minimum five questions.
- b) It should be taken during the conduct of practical examination

Q. No.6. Journal 10

Journal should be complete in all respect.

Crop Science (LA, LB, LC)
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.