Strictly Confidential: (For Internal and Restricted use only)
Senior School Certificate Examination
March 2019
Marking Scheme - AGRICULTURE (068)

General Instructions: -

1. You are aware that evaluation is the most important process in the actual and correct assessment of the candidates. Small mistake in evaluation may lead to serious problems which may affect the future of the candidates, education system and teaching profession. To avoid mistakes, it is requested that before starting evaluation, you must read and understand the spot evaluation guidelines carefully. **Evaluation is a 10-12 days mission for all of us. Hence, it is desired from you to give your best in this process.**
2. Evaluation is to be done as per instructions provided in the Marking Scheme. It should not be done according to one's own interpretation or any other consideration. Marking Scheme should be strictly adhered to and religiously followed. **However, while evaluating, answers which are based on latest information or knowledge and innovative may be assessed and marks be awarded to them.**
3. The Head-Examiner must go through the first five answer books evaluated by each evaluator to ensure that evaluation has been carried out as per the instructions given in the Marking Scheme. The remaining answer books meant for evaluation shall be given only after ensuring that there is no significant variation in the marking of individual evaluators.
4. If a question has parts, please award marks on the right-hand side for each part. Marks awarded for different parts of the question should then totaled up and written in the left-hand margin and encircled.
5. If a question does not have any parts, marks must be awarded in the left hand margin and encircled.
6. If a student has attempted an extra question, answer of the question deserving more marks should be retained and other answer scored out.
7. No marks to be deducted for the cumulative effect of an error. It should be penalized only once.
8. A full scale of marks 1-70 has to be used. Please do not hesitate to award full marks if the answer deserves it.
9. Every examiner should stay full working hours i.e. 8 hours every day and evaluate 25 answer books.
10. Avoid the following common types of errors committed by the Examiner in the past:-
    - Leaving answer or part thereof unassessed in an answer book.
    - Giving more marks for an answer than assigned to it.
    - Wrong transfer of marks from the inside pages of the answer book to the title page.
    - Wrong question wise totaling on the title page.
    - Wrong totaling of marks of the two columns on the title page.
    - Wrong grand total.
    - Marks in words and figures not tallying.
    - Wrong transfer of marks from the answer book to online award list.
    - Answers marked as correct, but marks not awarded. (Ensure that the right tick mark is correctly and clearly indicated. It should merely be a line. Same is with the X for incorrect answer.)
    - Half or a part of answer marked correct and the rest as wrong, but no marks awarded.
11. While evaluating the answer books if the answer is found to be totally incorrect, it should be marked as (X) and awarded zero (0)Marks.
12. Any unassessed portion, non-carrying over of marks to the title page or totaling error detected by the candidate shall damage the prestige of all the personnel engaged in the evaluation work as also of the Board. Hence, in order to uphold the prestige of all concerned, it is again reiterated that the instructions be followed meticulously and judiciously.

13. The Examiners should acquaint themselves with the guidelines given in the Guidelines for spot Evaluation before starting the actual evaluation.
14. Every Examiner shall also ensure that all the answers are evaluated, marks carried over to the title page, correctly totaled and written in figures and words.
15. As per order of the Hon'ble Supreme Court, the candidates are now permitted to obtain photocopy of the Answer Book on request on payment of the processing charges.

2018-19

MARKING SCHEME: AGRICULTURE (068)

English Version

The following Instruction be included on the cover page of the Marking scheme in General Instruction.

- The Marking Scheme carries only suggested value points for the answers.
- These are only Guidelines and do not constitute the complete answer.
- The students can have their own expression and if the expression is correct, the marks be awarded accordingly.
- The Candidate would be permitted to obtain photocopy of the answer Book on request on payment of the prescribed fee. All Examiners/Additional Head Examiners/ Head Examiners are once again reminded that they are must ensure that evolution is carried out strictly as per value points of each answer as given in the Marking Scheme.
- All the head Examiners/Additional Head Examiners/ Examiners are instructed that while Evaluating the answer scripts, if the answer is found to be totally incorrect, the (x) should be marked on the incorrect answer and awarded "0" marks.

MARKING SCHEME

2018 – 19

Agriculture (Theory)-068

Class XII

Time duration: 3 Hrs **Maximum Marks: 70**

Q. No.	Question	Marks
1	Oil seed cake	1
2	Any fruit, like aonla, apple	1
3	Ripening is the physiological process by which fruits attain their desirable flavour, quality, colour, palatable nature and other textural properties.	1
4	Karl Von Frisch	1
5	*Cynodon dactylon* or Hariyali or Doop	1
6	Queen	1
7	Sikkim	1
8	Sugar	1
9	Because pasteurization gives cooked flavor. Chemical preservative increase shelf life better.	1

10	**Characters of good spawn:** (1) Proper coating of mycelium around each grain. (2) The growth of fresh spawn is more or less whitish. there should not be any slimy growth or greenish or blackish spot in spawn as indicates bacterial aor fungal contamination, respectively.	1=1=2
11	*Any two* (1) Lack of infrastructure for post harvest handling and storage. (2) Absence of cold chain facility. (3) lack of technical support. (4) Poor credit facility by financial institution for setting up of plant.	1=1=2
12	Vermicompost is the production of compost using earthworm. The vermicompost is rich in plant nutrients and other factors which help in plant growth and crop yield. Improvement of soil texture.	2
13	*Any two* (1) Organic manures provide optimal growing condition. (2) Organic manure supplies most of macro nutrients and micronutrients. (3) It improves the soil physical, chemical and biological properties of soil. (4) There is effective use of byproducts.	1+1=2

14	*Any two* (1) Reduces moisture losss and shivering with reduced postharvest losses. (2) improves product appearance. (3) Does not allow easy growth of mould on fruit surface.	1+1=2
15	*Any three* ***Vegetables***: (1) Pickle (2) Frozen vegetables(pea) (3) tomato ketchup (4) potato chips (5) morabba (carrot) ***Floricultural crops*** (1) Rose water (2) Gulkhand (3) Essential oil (4) Flavour and Fragrance (5) Dry flowers (6) Insecticidal compounds	1½ +1½ =3

16	(a) ***Azolla***: ➥ Free floating fresh water fern ➥ Supply 30-40 kg N/ha ➥ Thrive well at low temperature ➥ can also be applied as manure. Rice paddy field from an ideal environment for azolla. ➥ Improve yields by 15-20 per cent. ➥ found to be a very nutritive and cheap organic feed substitute for dairy cattle ***(b) Rhizobium*** ➥ Symbiotic bacteria capable of fixing atmospheric nitrogen ➥ forms association with roots of leguminous plants ➥ They are the most efficient biofertilizer as per the quantity of nitrogen fixed concerned. ➥ They have seven genera and highly specific to form nodule in legumes, referred as cross inoculation group. ***(c) Azotobacter*** ➥ It is the important and well known free living **nitrogen fixing (non-symbiotic) aerobic bacterium.** ➥ It is used as a Bio-Fertilizer for all non leguminous plants especially rice, cotton, vegetables etc.	1=1+1=3

	➥ Increases yield ➥ The lack of organic matter in the soil is a limiting factor for the proliferation of *Azotobacter* in the soil.	
17	*Description should cover following irrigation methods* (1) Cleaning (2) Drying to reduce soil moisture (3) To extract oil and oil cake for feeding to cattle (4) Packaging, labeling, storage and marketing .	3
18	Any two methods: ***(1) <u>Seeding</u>*** ➥ seeds of doop grass which is fast spreading ➥ 30 kg seed required for planting in one hectare. ➥ field divided into small plots, seed mixed with soil and then spread over the field. ➥ light watering should be given. avoid flood irrigation ***(2) <u>Turfing</u>*** ➥ Turf is piece of earth with compact grass on them ➥ turf is removed along with earth and cut uniformly in small pieces. ➥ placed on lawn site and beaten down.	1½ +1½ =3

	(3) <u>Turf plastering</u> ➥ Grass chopped into small bits i.e. 5-7 cm long ➥ mixed well with garden soil. ➥ spread uniformily and water lightly	
19	*Answer should be based on following points* Application of solid fertilizer (1) Broadcasting (a) Basal application (b) Top dressing (2) Placement (a) Plough sole placement (b) Deep placement (c) Localised placement (3) Band placement (4) Foliage applications	3

<table>
<tr>
<td>20</td>
<td>
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<tr><th>Jam</th><th>Jelly</th></tr>
<tr><td>Made from fruit pulp</td><td>Made from the clarified fruit juice containing pectin.</td></tr>
<tr><td>Opaque in nature</td><td>Translucent or transparent in nature</td></tr>
<tr><td>End product is less firm than jelly</td><td>End product is more firm than jam</td></tr>
<tr><td>Solid like</td><td>Gel like</td></tr>
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<td>3</td>
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<tr>
<td>21</td>
<td>Any three

<u>Function of potassium in plants</u>

(1) Reduces lodging of cereal crops
(2) Regulates opening and closing of stomata
(3) regulates movement of sugars and ions
(4) Activates enzymes and help in enzyme synthesis
(5) Regulate water imbalances within plant
(6) Regulate uptake of CO_2

<u>Deficiency of potassium</u>

(1) Stunted growth with short internodes
(2) Reduced rate of photosynthesis</td>
<td>1 ½ +1 ½ =3</td>
</tr>
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	(3) chlorosis, yellowing of leaf and leaf scorch (4) Poor yield **OR** **<u>Function of iron in plants</u>** (1) Help in synthesis of chlorophyll. (2) Structural component of certain biomolecules like cytochromes. (3) Constituent of certain enzymes e.g., catalase. (4). Helpful in absorption of other nutrients **<u>Deficiency of iron</u>** (1) Interveinal chlorosis. Later, yellowing of leaves (2) Symptoms first appear in lower leaves. (3) Reduced yield due to poor photosynthesis.	

22	(a) Abiotic component: air and water Biotic component: Microorganism *(b) description on following points* Divide field into different homogenous units ↓ Drive the auger or give V-shaped cut upto 15cm deep ↓ Mix samples thoroughly and remove debris ↓ Reduce the bulk by compartmentalization ↓ Collect the sample and store in clean polythene bag ↓ Label the bag with required information.	1+4=5
23	Any five **Disadvantages of drip irrigation** (1) Expense specially initial cost is high. (2) The lifetime of the tubes used in drip irrigation can be shortened by the sun heat or rodents, etc . (3) Sensitive to clogging: May cause clogging of emitters if water saline.	5

	(4) Problems in moisture distribution. (5) Salinity problem. (6) High skills are required for design, install and operation. (7) out of reach to common farmers **OR** **Advantages of drip irrigation (Any five)** (1) Enhanced crop yield and crop yield. (2) Compact and efficient root system. (3) Water saving and higher water application efficiency. (4) Fertigation possible, minimum nutrient loss' (5) Suitable for irrigating higher value crops. (6) Limited weed growth. (7) Saves energy	
24	Jam is a product made by boiling fruit pulp with sufficient quantity of sugar to a reasonably thick consistency, firm enough to hold the fruit tissues in position. The FPO specification of jam is 68.55 TSS,45% of fruit pulp and 0.5-0.6% of acid (citric acid) per 100 gm of the prepared product	1+4 = 5

	Answer to be based on following points **Process:** Selection of Ripe firm fruits → Washing → Peeling → Pulping (Remove seed and core) → Addition of reauired sugar and acid → Boiling (with continuous stirring) → Judging of end point by further cooking upto 105 C or 69% TSS or by sheet test → Filling cooked pulp hot into sterilized bottles → Cooling → Waxing → Capping →Labeling →Storage (at ambient temperature).	
25	*Answer should be based on following points (Any five)* Precaution while making jelly (1) proper amount of sugar and pectin (2) correct amount of acid to be added (3) Cooking time should be correct which is judge by various endpoint (4) Immature or overripe fruits should not be selected (5) Filtration should be done by use of fine and clean cloth to get clarified juice. (6) Pouring should be done slowly so as to avoid trapping of air bubbles. (7) Scum if formed should be removed periodically. **OR**	5x1 = 5

	Problems associated with jelly making (1) Crystallization: Due to lower % of invert sugar (2) Sticky or gummy Jam: High % TSS (3) Premature setting: Due to low %TSS and high pectin content (4) Surface graining and shrinkage: evaporation of moisture (5) Microbial spoilage during storage: improper packaging	
26	Any five **Characteristic of grasses for lawn making** (1) Grass selected should be spreading one. (2) They should remain green throughout the year. (3) They should be soft and appealing to eyes. (4) They should be resistant to drought, cold, salinity and various pest and diseases. (5) Grasses should not be pointed one i.e., it should pierce. (6) It should be suitable for all types of soil. (7) They should easily available. (8) It should not have allergic reaction or produce allergens..	5x1 = 5
27	(a) Mother plant is permanent plant/tree in nursery. It provides bud sticks and scions for budding and grafting operations.	2+3 = 5

(b) Criteria for Selection of Mother Plants (*Any four*)

(1) Mother plants should be vigorous, healthy and high yielding. It should have a regular bearing habit.

(2) It should be free from pests, diseases and viruses.

(3) The mother plants must necessarily be genetically pure and superior in quality. They must be obtained from Registered Farms, Agriculture Universities or Government Nurseries.

(4) The purchase receipt of mother plant should be preserved to prove the origin and authenticity of the mother plants.

(5) Mother plants should be selected corresponding to the regional demand of the nursery plants.

(6) Ornamental mother plants are planted under protected conditions either under shade net or semi-shade conditions.

OR

Certification of nursery means that the nursery plants have been checked and identified as true-to-type by the competent authority.

2) The general standards for different fruit plants are as under: (Any four)

a) Nursery plants should be true-to-type and raised from healthy, disease free, high yielding progeny trees of good quality.

b) Nursery plants should be raised on recommended rootstocks and should not be raised on old stock.

	c) The bud/graft union should be smooth and strong enough. d) The bud/graft union should be 15-25 cm from the ground level. e) Nursery plants should be of standard height (60-120) cm depending upon the kind of fruit crops. f) Root system should be well developed and there should be no damage while uprooting the plants from nursery. g) Nursery plants should be healthy and free from diseases and insect- pests.	