

Marking Scheme
Strictly Confidential
(For Internal and Restricted use only)
Senior Secondary School Examination, 2026 (XIIth)
SUBJECT NAME: - Agriculture (Q.P. CODE 808/332)

General Instructions: -

1	You are aware that evaluation is the most important process in the actual and correct assessment of the candidates. A 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.
2	“Evaluation policy is a confidential policy as it is related to the confidentiality of the examinations conducted, evaluation done and several other aspects. Its leakage to public in any manner could lead to derailment of the examination system and affect the life and future of millions of candidates. Sharing this policy/document to anyone, publishing in any magazine and printing in Newspaper/Website, etc. may invite action under various rules of the Board and IPC.”
3	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/or are innovative, they may be assessed for their correctness otherwise and due marks be awarded to them. In Class-XII, while evaluating two competency-based questions, please try to understand given answer and even if reply is not from marking scheme but correct competency is enumerated by the candidate, due marks should be awarded.
4	The Marking scheme carries only suggested value points for the answers. These are in the nature of Guidelines only and do not constitute the complete answer. The students can have their own expression and if the expression is correct, the due marks should be awarded accordingly.
5	The Head-Examiner must go through the first five answer books evaluated by each evaluator on the first day, to ensure that evaluation has been carried out as per the instructions given in the Marking Scheme. If there is any variation, the same should be zero after deliberation and discussion. 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.
6	Evaluators will mark (✓) wherever answer is correct. For wrong answer CROSS 'X' be marked. Evaluators will not put right (✓) while evaluating which gives an impression that answer is correct and no marks are awarded. This is most common mistake which evaluators are committing.
7	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 be totalled up and written in the left hand margin and encircled. This may be followed strictly.
8	If a question does not have any parts, marks must be awarded in the left-hand margin and encircled. This may also be followed strictly.

9	If a student has attempted an extra question, answer of the question deserving more marks should be retained and the other answer scored out with a note " Extra Question "
10	No marks to be deducted for the cumulative effect of an error. It should be penalized only once.
11	A full scale of marks _____ (example 0 to 80/70/60/50/40/30 marks as given in Question Paper) has to be used. Please do not hesitate to award full marks if the answer deserves it.
12	Every examiner has to necessarily do evaluation work for full working hours i.e., 8 hours every day and evaluate 20 answer books per day in main subjects and 25 answer books per day in other subjects (Details are given in Spot Guidelines). This is in view of the reduced syllabus and number of questions in question paper.
13	Ensure that you do not make 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 totalling or marks awarded on an answer. • Wrong transfer of marks from the inside pages of the answer book to the title page. • Wrong question wise totalling on the title page. • Wrong totalling of marks of the two columns on the title page. • Wrong grand total. • Marks in words and figures not tallying/not same. • 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.
14	While evaluating the answer books if the answer is found to be totally incorrect, it should be marked as cross (X) and awarded zero (0) Marks.
15	Any unassessed portion, non-carrying over of marks to the title page, or totalling error detected by the candidate shall damage the prestige of all the personnel engaged in the evaluation work as also as the Board. Hence, in order to upload the prestige of all concerned, it is again reiterated that the instructions be followed meticulously and judiciously.
16	The Examiners should acquaint themselves with the guidelines given in the " Guidelines for Spot Evaluation " before starting the actual evaluation.
17	Every examiner shall also ensure that all the answers are evaluated, marks carried over to the title page, correctly totalled and written in figures and words.
18	The candidates are entitled to obtain photocopy of the Answer Book on request on payment of the prescribed processing fee. All Examiners/Additional Head Examiners/Head Examiners are once again reminded that they must ensure that evaluation is carried out strictly as per value points for each answer as given in the Marking Scheme.

MARKING SCHEME
AGRICULTURE (Subject Code - 808)
(PAPER CODE: 332) (P3320808)

Q.No.	EXPECTED OUTCOMES/VALUE POINTS	Marks
	SECTION – A OBJECTIVE TYPE QUESTIONS	
1.	Answer any 4 out of the given 6 questions on Employability skills. (1x4=4 marks)	
(i)	(B) A group of words that communicates a complete thought or meaning. U-1, Pg-9	1
(ii)	Stress is a state of feeling upset, annoyed and hopeless. U-2, Pg-26	1
(iii)	(A) Suspicious U-2, Pg-34	1
(iv)	(B) Information and Communication Technology. U-3, Pg-39	1
(v)	(D) Work area U-4, Pg-42	1
(vi)	‘Startup India’	1
2.	Answer any 5 out of the given 7 questions (1x5=5 marks)	
(i)	Soil sampling provides a complete analysis of a field’s soil, which helps a farmer make informed decisions to improve crop yields and reduce costs. By analyzing the samples in a lab, a farmer can identify the soil’s specific characteristics and nutrient needs.	1
(ii)	FPO (processed products), AGMARK (grading), and FSSAI (umbrella food safety law).	1
(iii)	Vitamin-D	1
(iv)	SO ₂ (Sulphur dioxide)	1
(v)	Refrigeration extends the shelf life of fruits and vegetables by slowing respiration, enzymatic activity and microbial growth, while also reducing moisture loss and ethylene effects-keeping them fresh for longer.	1
(vi)	Apiculture helps farmers earn extra income by selling honey, beeswax and other bee products, while also boosting crop yields through pollination.	1
(vii)	Oil cakes such as the castor, neem, madhuca, karanja, linseed, rape seed and cotton seed. any two	$\frac{1}{2}+\frac{1}{2}=\mathbf{1}$
3.	Answer any 6 out of the given 7 questions (1x6=6 marks)	
(i)	Heat	1
(ii)	About 10% or more economic damage/yield loss.	1
(iii)	Hygroscopic water : This water forms very thin films around soil particles and is not available to the plant. The water is held so tightly by the soil that it cannot be taken up by roots. Hygroscopic water held so tenaciously (-31 to -10000 bar/-449.6 psi to -145037.738 psi) by soil particles that plants cannot absorb it.	1
(iv)	Amchur	1
(v)	Papaya, banana, grapes, lime, karonda are suitable fruit trees for kitchen gardening. (Any one)	1
(vi)	List of traditional methods of preservation : (any one) (a) Sun drying (b) Salting	1

	(c) Smoking (d) Pickling (e) Fermentation (f) Sugaring (using jaggery or sugar syrup) (g) Cellaring/Cool storage (using underground pits or mud pots)	
(vii)	Urea is the most widely used nitrogen fertilizer in the world, with over 90% of its global production dedicated to agriculture. Its high nitrogen content (about 46%) makes it an efficient and cost-effective way to supply this essential nutrient to crops.	1
4.	Answer any 5 out of the given 6 questions (1x5=5 marks)	
(i)	Integrated Nutrient Management.	1
(ii)	68%	1
(iii)	Main types of silk (Any one) 1. Mulberry Silk 2. Tasar Silk 3. Eri Silk 4. Muga Silk	1
(iv)	The typical NPK ratio of DAP (Diammonium Phosphate) fertilizer is 18-46-0 . This ratio means it contains : ☐ 18% Nitrogen (N) ☐ 46% Phosphorus (P ₂ O ₅) ☐ 0% Potassium (K ₂ O)	1
(v)	Spoilage of fruits and vegetables is mainly caused by : (Any One) (a) Fungi (b) Yeasts (c) Bacteria	1
(vi)	Larvae	1
5.	Answer any 5 out of the given 6 questions (1x5=5 marks)	
(i)	17	1
(ii)	Class-1 preservatives : Common salt, sugar, dextrose, spices, vinegar, ascorbic acid (Any one)	1
(iii)	Round dance and Waggle dance	1
(iv)	Fruit juice	1
(v)	Paddy	1
(vi)	<i>Rhizobium</i>	1
6.	Answer any 5 out of the given 6 questions (1x5=5 marks)	
(i)	Marmalade	1
(ii)	Irrigation is necessary because it provides crops with sufficient water for proper growth when rainfall is inadequate or irregular. It improves agricultural yield, ensures food security, allows year-round farming and helps maintain soil fertility by supplying moisture at the right time.	1
(iii)	Ca (Calcium), Mg (Magnesium), S (Sulphur). Any One	1
(iv)	According to the Food Safety and Standards Authority of India (FSSAI) regulations, the least amount of fruit pulp required in most fruit jams is 45% by mass.	1
(v)	List of value-added products made from ripe tomatoes : (any one) (a) Tomato ketchup (b) Tomato sauce	1

	(c) Tomato puree (d) Tomato paste (e) Tomato juice (f) Tomato chutney (g) Tomato pickles (h) Tomato jam (i) Sun-dried tomatoes (j) Tomato powder	
(vi)	Micronutrient essential for plant growth (Any one) Iron, Manganese, Boron, Zinc, Copper, Molybdenum, Chlorine	1
	SECTION – B : SUBJECTIVE TYPE QUESTIONS	
	Answer any 3 out of the given 5 questions on Employability skills (2x3=6 marks) Answer each question in 20-30 words.	
7.	Communication is a two-way process through which information or message is exchanged between individuals using language, symbols, signs or behaviour. Speaking, listening, reading and writing are the parts of communication. U-1, Pg-1	2
8.	(i) Openness- Individuals are creative, curious, active, flexible and adventurous. (ii) Consciousness – self disciplined, work on time, take care of others. (iii) Extraversion – love to interact with people. (iv) Agreeableness – kind, sympathetic, cooperative, considerate and warm. (v) Neuroticism – tendency towards anxiety, self doubt, depression, shyness. U-2, Pg-33	0.5x4=2 any four
9.	(i) Sorting Data in IT refers to the process of arranging data elements in a specific order such as ascending or descending based on pre-defined criterion. (ii) It helps in data organization, making it easier to search, analyze and process information efficiently. U-3, Pg-58	1x2=2
10.	Environmental barriers : (i) Lack of adequate resources or raw materials. (ii) Non-availability of skilled labour. (iii) Lack of requisite machinery and infrastructure. (iv) Unavailability of monetary resources on time. U-4 Pg-	2
11.	According to UNEP-United Nations Environment Program, green jobs or green collar jobs are works in agricultural, administrative, research and development, manufacturing and service activities that contribute substantially to preserving or restoring environment quality. U-5, Pg-112	2
	Answer any 3 out of the given 5 questions in 20-30 words each (2x3=6 marks)	
12.	(a) Any two techniques (i) carbonation (Replacing the O ₂ by CO ₂ .Or By any inert gas (ii) Vacuum creation (iii) Use of oils from top of the food. (iv) Canning (b) Product example (i) carbonation (Replacing the O ₂ by CO ₂ .Or By any inert gas --carbonated fruit juice	1+0.5+0.5=2

	(ii) Vacuum creation –Packaging of tea, amchur, haldi powder, etc., dried fruit and vegetables (iii) Use of oils from top of the food. - Pickles (iv) Canning – Canned fruit and vegetables	
13.	Top dressing is the practice of applying fertilizers to a standing crop by broadcasting them over the soil surface. It is usually done after the crop has germinated to supply additional nutrients, mainly nitrogen , during the active growth stage for better yield. Example : Urea	1+1=2
14.	Method of pickle preparation. (any two) (i) Preservation with salt : Salt improves the taste and flavour and hardens the tissues of vegetables and controls fermentation. Salt content of 15 percent or above prevents microbial spoilage. This method of preservation is generally used only for vegetables and some fruits like lime, mango etc. which contain very little sugar and hence sufficient lactic acid cannot be formed by fermentation to act as preservation. (ii) Preservation with vinegar : The fruits and vegetables preserved in vinegar whose final concentration, in terms of acetic acid in the finished pickle should not be less than 2 percent. (iii) Preservation with oil : The fruits and vegetables should be completely immersed in the edible oil. Cauliflower, lime mango and turnip pickles are the most important oil pickles. (iv) Preservation with mixture of salt, oil, spices and vinegar : The fruits and vegetables can preserve in mixture of salt, oil, spices and vinegar. Cauliflower, carrot, turnip, red chilli, jackfruit and tomato most important pickle those are prepared by this method.	1+1=2
15.	Secondary processing of cereals includes the following processes : f i. fermentation ii. baking, iii. puffing, iv. flaking, v. frying vi. extrusion. (Any four)	2
16.	Honeybees are crucial to agriculture as they are the primary pollinators. By transferring pollen between plants, they enable the fertilization of crops like mustard and fruits (litchi, apple etc) and vegetables, which leads to increased yield and improved food quality, making them vital to a stable food system.	2
	Answer any 2 out of the given 3 questions in 30-50 words each (3x2=6 marks)	
17.	Name the bio pesticide derived from the following source. (a) Animals e.g. nematodes (b) Plants e.g. - <i>Chrysanthemum</i> , <i>Azadirachta</i> (c) Micro-organisms e.g. <i>Bacillus thuringiensis</i> , <i>Trichoderma</i> , <i>nucleopolyhedrosis virus</i> .	1+1+1=3
18.	(a) List the typical ingredients used in fresh flower preservatives. Fresh flower preservatives are chemicals added to water to make flowers	2+1=3

	last longer. They contain a → Germicide → A food source → A pH adjuster → Water → Sometimes surfactants and hormones. (b) 8-HQC (8-hydroxyquinoline citrate) is the most common one used in commercial floral preservatives.	
19.	These criteria are : (i) A deficiency of the given element makes it for the plant impossible to complete its life cycle. (ii) The deficiency is specific for the given element and not replaceable by another element. (iii) The element is a constituent of an essential metabolite or it is required for the action of an enzyme system.	3
	Answer any 3 out of the given 5 questions in 50-80 words each (4x3=12 marks)	
20.	(a) Sericulture is the agro-based industry of cultivating silkworms to produce raw silk. It's a key cottage industry in many countries, particularly in Asia and involves feeding the silkworms, allowing them to spin cocoons and then reeling the silk filaments. (b) The insect reared in sericulture is the domestic silkworm, <i>Bombyx mori</i>. Life cycle of silk worm <pre> EGGS → LARVAE → COCOON → SILK MOTH ↑ ↓ └────────────────────────────────┘ </pre>	1+3=4
21.	Kitchen garden is a small area near the house where vegetables, fruits and herbs are grown mainly for household consumption. It provides fresh, pesticide-free produce, saves money, improves nutrition and makes efficient use of available space, water and organic waste (like compost). Key principles to be followed for successful kitchen gardening are. (Any three) (i) The vegetables like cucurbits and beans should be grown around the border and allowed to spread on the fence. (ii) The root crops like radish, turnip, carrot, etc should be raised on ridges. The land should not be left vacant and intensive crop cultivation should be followed with successive or companion crops. (iii) The proper crop rotation must be followed in the selection of vegetable crops. There should be a provision of compost pit in the corner of the kitchen garden. (iv) The staking varieties of vegetables should be preferred for kitchen gardening. The proper planning including a selection of vegetable type and its varieties should be done before sowing to ensure a continuous supply of fresh vegetables full of nutrients without glut. (v) For 5-6 members of family need 250-300m² area in kitchen garden.	1+3=4

	Maximum area cover in kitchen gardening from leafy vegetable.																						
22.	Biological control of insect pests is the use of natural enemies – such as predators, parasites or pathogens – to reduce pest populations in crops, minimizing the need for chemical pesticides. Examples : (i) Ladybird beetles (ladybugs) feeding on aphids in vegetable crops. (ii) Parasitic wasps (like <i>Trichogramma</i> species) controlling caterpillar pests in crops like rice and maize. Advantages of mechanical control of insect pests : (Any two) (i) Safe for humans and environment – No chemicals are used. (ii) Immediate effect – Pests are physically removed or trapped. (iii) Simple and inexpensive – Requires basic tools and labor. (iv) Prevents pest spread – Barriers or traps stop pests from reaching crops. (v) No chemical residues – Safe for edible crops and soil health.	2+2=4																					
23.	Horticulture : Horticulture is a branch of agriculture in which deal fruit crops, vegetable crops, ornamental plant, commercial flower, medicinal crops, aromatic crops, spices crops, plantation crops, individual tree, shrub, climber and post-harvest management and processing. Contribution of horticultural crops to the economy and nutritional security of India (Any four) - Per unit area yield is high - High returns per unit area - High employment generation per unit area - Best utilisation of waste land - Raw materials for industries - Use of undulating lands - Horticultural crops have medicinal value - High nutritive value as compared to other crops (b) (Any two) <table border="1"> <thead> <tr> <th>Type of Crop</th><th>Purpose</th><th>Examples</th></tr> </thead> <tbody> <tr> <td>Fruit crops</td><td>Edible fruits</td><td>Mango, Grapes, Banana, Apple, Litchi, Papaya</td></tr> <tr> <td>Vegetable crops</td><td>Edible leaves, stems, roots or fruits</td><td>Tomato, Carrot, Cabbage, Spinach, Radish</td></tr> <tr> <td>Flower crops</td><td>Ornamental/decorative</td><td>Rose, Marigold, Jasmine, Sunflower, Tulip, Tuberose</td></tr> <tr> <td>Ornamental plants</td><td>Landscaping/indoor decoration</td><td>Bonsai, Hibiscus, Money plant, Ficus</td></tr> <tr> <td>Medicinal & aromatic plants</td><td>Medicinal or fragrance</td><td>Aloe vera, Tulsi, Peppermint, Lemongrass</td></tr> <tr> <td>Spices</td><td>Flavoring/seasoning food</td><td>Cardamom, Turmeric, Black pepper, Clove</td></tr> </tbody> </table>	Type of Crop	Purpose	Examples	Fruit crops	Edible fruits	Mango, Grapes, Banana, Apple, Litchi, Papaya	Vegetable crops	Edible leaves, stems, roots or fruits	Tomato, Carrot, Cabbage, Spinach, Radish	Flower crops	Ornamental/decorative	Rose, Marigold, Jasmine, Sunflower, Tulip, Tuberose	Ornamental plants	Landscaping/indoor decoration	Bonsai, Hibiscus, Money plant, Ficus	Medicinal & aromatic plants	Medicinal or fragrance	Aloe vera, Tulsi, Peppermint, Lemongrass	Spices	Flavoring/seasoning food	Cardamom, Turmeric, Black pepper, Clove	3+1=4
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24.	<u>(a) Methods used to prevent or delay microbial decomposition in food preservation.</u> (i) By keeping out the micro organisms-Asepsis (ii) By removal of micro organisms-Filtration (iii) By Hindering the growth and activity of micro organisms-Anaerobic condition (iv) By killing the micro organisms-Exposing at high temperature (b) Blanching is immersion of fruits and vegetables in hot water for desired time to inactivate enzymes <u>Key functions of blanching in the process of vegetable preservation. (Any One)</u> (i) It is primary treatments which have to soften the tissues to facilitate packaging. (ii) To preserve the original colour and flavour (iii) To destroy the certain enzyme which are undesirable (iv) Elimination of the air (v) Mostly for vegetables (vi) Remove micro-organisms (vii) Remove astringent taste and toxins	2+2=4
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