CBSE | DEPARTMENT OF SKILL EDUCATION

AGRICULTURE (SUBJECT CODE-808)

MARKING SCHEME FOR CLASS XII (SESSION 2024-2025)

Max. Time: 3 Hours **Max. Marks: 60**

General Instructions:

1. Please read the instructions carefully.
2. This Question Paper consists of **24 questions** in two sections – Section A & Section B.
3. Section A has Objective type questions whereas Section B contains Subjective type questions.
4. **Out of the given (6 + 18 =) 24 questions, a candidate has to answer (6 + 11 =) 17 questions in the allotted (maximum) time of 3 hours.**
5. All questions of a particular section must be attempted in the correct order.
6. **SECTION A - OBJECTIVE TYPE QUESTIONS (30 MARKS):**
   - **i.** This section has 06 questions.
   - **ii.** There is no negative marking.
   - **iii.** Do as per the instructions given.
   - **iv.** Marks allotted are mentioned against each question/part.
7. **SECTION B – SUBJECTIVE TYPE QUESTIONS (30 MARKS):**
   - **i.** This section contains 18 questions.
   - **ii.** A candidate has to do 11 questions.
   - **iii.** Do as per the instructions given.
   - **iv.** Marks allotted are mentioned against each question/part.

SECTION A: OBJECTIVE TYPE QUESTIONS

Q. No.	QUESTION	Source Material (NCERT/PSSCIVE/ CBSE Study Material)	Unit/ Chap. No.	Page no. of source material	Marks
Q. 1	**Answer any 4 out of the given 6 questions on Employability Skills (1 x 4 = 4 marks)**				
i.	b. A group of words that communicates a complete thought	NCERT	Unit I	9	**1**
ii.	B. Use air purifiers with HEPA filters	NCERT	Unit V	118	**1**
iii.	a. Borderline	NCERT	Unit II	35	**1**
iv.	c. Professional	NCERT	Unit IV	83	**1**
v.	a. Specific	NCERT	Unit II	30	**1**
vi.	b. Row	NCERT	Unit II	41	**1**
Q. 2	**Answer any 5 out of the given 7 questions (1 x 5 = 5 marks)**				
i.	Paddy straw mushroom and White button mushroom	CBSE Study Material	Unit V	183, 176	**1**
ii.	Tomato ketchup and Tomato Puree	CBSE Study Material	Unit III	86	**1**
iii.	Mo and Co	CBSE Study Material	Unit I	14	**1**
iv.	*Chrysanthemum, Azadirachta*	CBSE Study Material	Unit V	196	**1**
v.	120 g	CBSE Study Material	Unit I	5	**1**
vi.	Shade house and mist house	CBSE Study Material	Unit V	207	**1**
vii.	Nitrogen, Phosphorus and Potassium	CBSE Study Material	Unit I	14	**1**
Q. 3	**Answer any 6 out of the given 7 questions (1 x 6 = 6 marks)**				

i.	Hygroscopic water	CBSE Study Material	Unit I	49	**1**
ii.	Basin method and Furrow method	CBSE Study Material	Unit I	54	**1**
iii.	Vitamin A	CBSE Study Material	Unit I	6	**1**
iv.	Fe and Mn	CBSE Study Material	Unit I	16	**1**
v.	Maize	CBSE Study Material	Unit I	61	**1**
vi.	*Eisenia fetida* and *Eiseniella tetraedra*	CBSE Study Material	Unit V	204	**1**
vii.	Buddhist garden and Japanese garden	CBSE Study Material	Unit V	194	**1**
Q. No.	**QUESTION**	**Source Material (NCERT/PSSCIVE/ CBSE Study Material)**	**Unit/ Chap. No.**	**Page no. of source material**	**Marks**
Q. 4	**Answer any 5 out of the given 6 questions (1 x 5 = 5 marks)**				
i.	*Apis dorsata* (The rock- bee)	CBSE Study Material	Unit V	159	**1**
ii.	Ghaziabad, U.P.	CBSE Study Material	Unit II	76	**1**
iii.	Prevention of Food Adulteration (PFA) Act, 1954 and Essential Commodity Act, 1955	CBSE Study Material	Unit IV	156	**1**
iv.	Direct evaporation cooling	CBSE Study Material	Unit III	93	**1**
v.	Endoparasite	CBSE Study Material	Unit I	67	**1**
vi.	Conditioning/Hardening	CBSE Study Material	Unit III	102	**1**
Q. 5	**Answer any 5 out of the given 6 questions (1 x 5 = 5 marks)**				
i.	Sodium Benzoate	CBSE Study Material	Unit IV	123	**1**
ii.	Queen	CBSE Study Material	Unit V	159	**1**
iii.	Phosphorus	CBSE Study Material	Unit I	17	**1**
iv.	Pineapple and Cashewnut	CBSE Study Material	Unit II	80	**1**
v.	Jelmeter test	CBSE Study Material	Unit IV	131	**1**
vi.	M. Nicolas Appert	CBSE Study Material	Unit III	87	**1**
Q. 6	**Answer any 5 out of the given 6 questions (1 x 5 = 5 marks)**				
i.	Castor cake and cotton cake	CBSE Study Material	Unit I	31	**1**
ii.	Hazard Analysis and Critical Control Point (HACCP)	CBSE Study Material	Unit IV	154	**1**
iii.	Hydro cooling and Forced air cooling	CBSE Study Material	Unit III	88	**1**
iv.	Onion and potatoes	CBSE Study Material	Unit III	90	**1**
v.	K^+	CBSE Study Material	Unit I	15	**1**
vi.	Cashewnut and almond	CBSE Study Material	Unit I	6	**1**

SECTION B: SUBJECTIVE TYPE QUESTIONS

Q. No.	**QUESTION**	**Source Material (NCERT/PSSCIVE/ CBSE Study Material)**	**Unit/ Chap. No.**	**Page no. of source material**	**Marks**
Answer any 3 out of the given 5 questions on Employability Skills in 20 – 30 words each (2 x 3 = 6 marks)					
Q. 7	Four reasons why listening attentively is important- 1. to obtain information	NCERT	UNIT I	3,4	**½X4=2**

	2. to understand 3. to enjoy 4. to learn 5. to build and maintain relationships 6. to resolve conflicts **Any other, Any four**				
Q. 8	Four characteristics of entrepreneurship are- 1. An economic activity done to create, develop and maintain a profit-oriented organisation. 2. It begins with identifying an opportunity as a potential to sell and make profit in the market. 3. Deals with optimisation in utilisation of resources. 4. It is the ability of an enterprise and an entrepreneur to take risks. **Any other, Any four**	NCERT	UNIT IV	80	**½X4=2**
Q. 9	Four ways to maintain positive attitude- 1. Start the day with a morning routine. 2. Feed the mind with positivity, read motivating books, listen to music with uplifting lyrics, watch inspiring movies, etc. 3. Be proactive. 4. Focus on constructive and positive things. 5. Learn from failures. 6. Learn to focus on the present. 7. Move towards your goals and dreams. **Any other, Any four**	NCERT	UNIT II	25	**½X4=2**
Q. 10	Four advantages of presentation software- 1. They are interesting as they have features like images, videos, animation and music. 2. Making changes in digital presentations is easy. 3. A digital presentation can be shown to a much larger audience by projecting on a screen. 4. The presentation can be printed and distributed to the audience. **Any other, Any four**	NCERT	UNIT III	63	**½X4=2**
Q. 11	Four benefits of green jobs are- 1. increase the efficiency of energy and 2. raw material.	NCERT	UNIT V	115	**½X4=2**

	3. reduce greenhouse gas emissions. 4. control waste and pollution. 5. protect and restore ecosystems. 6. support adaptation to the effects of climate change. **Any other, Any four**				
Answer any 3 out of the given 5 questions in 20 – 30 words each (2 x 3 = 6 marks)					
Q. 12	Organic agriculture is a unique production management system which promotes and enhances agro-ecosystem health, including biodiversity, biological cycles and soil biological activity, and this is accomplished by using on-farm agronomic, biological and mechanical methods in exclusion of all synthetic off-farm inputs.	CBSE Study Material	Unit II	76	**2**
Q. 13	The Indian Banglore Method, The Indian Indore Method, Indian Indore heap method, Indian Coimbatore method, NADEP method, ADCO Method.	CBSE Study Material	Unit I	32, 33, 34	**2**
Q. 14	The capability of soil to produce specified crop yield under well-defined and specified systems of management of inputs and environmental conditions.	CBSE Study Material	Unit I	11	**2**
Q. 15	There are three main principles: A. Prevention / delay the microbial decomposition of the food. B. Prevention / delay the shelf decomposition of the food. C. Prevention of damage by insects, animals, mechanical causes *etc.*	CBSE Study Material	Unit IV	120	**2**
Q. 16	The Mega Food Parks Scheme (MFPS) is the flagship program of the Ministry of Food Processing Industries (MFPI) during the 11th five-year plan. The scheme aims to accelerate the growth of food processing industry in the country through facilitating establishment of strong food processing infrastructure backed by an efficient supply chain.	CBSE Study Material	Unit III	113	**2**
Answer any 2 out of the given 3 questions in 30– 50 words each (3 x 2 = 6 marks)					
Q. 17	**Problems of Jelly making** **Jelly is failed to set: -**Jelly is failed to set due to addition of too much sugar, lake of acid the end-point, cooking below the end-point, cooking beyond the end-point and prolonged cooking. **Cloudy or foggy jelly: -**Cloudy or foggy jelly due to use of non-clarified juice or extract, use of immature fruits, over-cooking, non-removal of scum, faulty pouring and premature gelation. **Formation of crystals in jelly: -**Formation of crystals in jelly due to addition of excess sugar and also to over-concentration of jelly.	CBSE Study Material	Unit IV	132	**3**

	Syneresis or weeping of jelly: - Syneresis or weeping of jelly is the phenomenon of spontaneous exudation of fluid from a gel is called syneresis and weeping and is caused by excess of acid, too low concentration of sugar, insufficient pectin, premature gelation and fermentation				
Q. 18	**Puffing: -** Puffed grains are often used as breakfast cereals or as snack food. During puffing, grains are exposed to a very high steam pressure which causes the grain to burst open. The puffed grains can be further processed by toasting, coating or mixing with other ingredients. **Flaking: -** Flaked cereals are partially cooked and can be used as quick-cooking or ready to eat foods. The grains are softened by partially cooking in steam. They are then pressed or rolled into flakes which are dried. The flakes are eaten crisp and should have a moisture content of below 7%.	CBSE Study Material	Unit III	106	**3**
Q. 19	1. Stunted growth may occur because of reduction in cell division. 2. Pale green to light yellow colour (chlorosis) appears first on older leaves, usually starting at the tips. 3. Depending on the severity of deficiency, the chlorosis could result in the death and/or dropping of the older leaves. 4. Plants more susceptible to weather stress and disease. 5. N deficiency causes early maturity in some crops, which results in a significant reduction in yield and quality.	CBSE Study Material	Unit I	16, 17	**3**
Answer any 3 out of the given 5 questions in 50– 80 words each (4 x 3 = 12 marks)					
Q. 20	**Importance of Soil Organic Carbon: -**While the agricultural sector has the ability to impact the carbon cycle on a large scale, often through the release of carbon, farmers have a vested interest in retaining and increasing soil organic carbon for individual fields because soil and yield tend to improve when the soil organic carbon level increases. Higher soil organic carbon promotes soil structure or tilth meaning there is greater physical stability. This improves soil aeration (oxygen in the soil) and water drainage and retention, and reduces the risk of erosion and nutrient leaching. Soil organic carbon is also important to chemical composition and biological productivity, including fertility and nutrient holding capacity of a field. As carbon stores in the soil increase, carbon is	CBSE Study Material	Unit I	26, 27, 28	**4**

—sequestered, and the risk of loss of other nutrients through erosion and leaching is reduced. An increase in soil organic carbon typically results in a more stable carbon cycle and enhanced overall agricultural productivity, while physical disturbances of the soil can lead to a net loss of carbon into the surrounding environment due to formation of carbon dioxide (CO_2).

Management practices that can increase soil organic carbon

Management practices	**Functions and explanation**
Conservation tillage practices	Conservation tillage practices including no-till management aid in storing soil organic carbon, keeping the physical stability of the soil intact. When reduced-till systems are combined with residue management and manure management, soil organic carbon can increase over time.
Crop residue management	Returning crop residue to the soil adds carbon and helps to maintain soil organic matter.
Cover crops	Cover crops can increase soil carbon pools by adding both root and above ground biomass. Covers also reduce the risk of soil erosion and the resulting loss of

			carbon with soil particles. Cover crops also enhance nutrient cycling and increase soil health over time.				
		Manure and compost	Adding organic amendments such as manure or compost can directly increase soil carbon, and also result in increased soil aggregate stability. This enhances the biological buffering capacity of the soil, resulting in greater yields and yield stability over time.				
		Crop selection	Perennial crops eliminate the need for yearly planting and increase soil organic carbon by root and litter decomposition post-harvest. Crops with greater root massin general add to root decomposition and physically bond aggregates together. Using high residue annual crops can also help reduce net carbon loss from cropping systems.				
Q. 21	**The Government of India is promoting organic farming through various schemes like National Project on Organic Farming: -** Under National Project on Organic Farming (NPOF) scheme, assistance up to 25% and 33% of financial outlay up to a ceiling of Rs. 40 lakhs and Rs. 60 lakhs respectively is provided as back ended subsidy through NABARD for			CBSE Study Material	Unit II	80, 81	**4**

	establishment of bio- pesticides/biofertilizers production units and agro waste compost production units respectively. Under NPOF, a total of 56 nos. biofertilizers production units and 17 nos. of fruit/vegetables waste compost units have been established in the country. Government has been advocating integrating use of chemical fertilizers and organic manures including biofertilizers for increasing production of major crops. **National Horticulture Mission: -** Besides, under National Horticulture Mission (NHM) and Horticulture Mission for North East & Himalayan States (HMNEH), financial assistance is provided for setting up vermi-compost production units @ 50% of the cost subject to a maximum of Rs. 30,000/- per beneficiary, for adoption of organic farming @ Rs.10,000/- per hectare for maximum area of 4 hectare per beneficiary and for organic farming certification @ Rs.5.00 lakh for a group of farmers covering an area of 50 hectares. **Rashtriya Krishi Vikas Yojna: -** Assistance for promotion of organic farming on different components are also available under Rashtriya Krishi Vikas Yojana (RKVY) with the approval of State Level Sanctioning Committee. **National Food Security Mission: -** Under National Food Security Mission (NFSM) on Pulses, including Accelerated Pulses Production Programme (A3P), assistance for popularizing Rhizobium culture/Phosphate Solubilizing bacteria is provided to the farmers under cluster demonstrations. **Promoting the use of Biofertilizer: -** Central Government has notified biofertilizers like Rhizobium, Azotobacter, Azospirillum, Acetobacter, PSB, KMB, Zinc Solubilizing bacteria under Fertilizer Control Order (FCO). Similarly, under Initiative for Nutritional Security through Intensive Millets Promotion (INSIMP) Programme, Phosphate Solubilising Bacteria/Azotobacter culture is provided to the farmers as part of technology demonstration. Further, under National Project on Management of Soil Health and Fertility (NPMSH&F) financial assistance of Rs 500 per hectare is provided to promote use of organic manure. **ICAR Contribution in Promoting Organic Farming**: - All India Network Project on Soil Biodiversity-Biofertilizers is implemented by Indian Council of Agricultural Research (ICAR) for R & D on biofertilizers. The ICAR has developed technologies to prepare various types of organic manures such as				

	phosphocompost, vermi compost, municipal solid waste compost etc. Improved and efficient strains of biofertilizers specific to different crops and soil types are being developed under Network Project on biofertilizers. The financial assistance is provided on the basis of project proposals received from States including Maharashtra. Indian Council of Agricultural Research (ICAR) under Network Project on Organic Farming, with lead center at Project Directorate for Farming Systems Research Modipuram is developing package of practices of different crops and cropping system under organic farming in different agro-ecological regions of the country.				
Q. 22	**Post-Harvest Factors** **Water relations:** The termination of life of the harvested flowers depends on water uptake and transport, water loss and the capacity of the flower tissue to retain its water. A water deficit and wilting develop, when the transpiration exceeds absorption of water. The rate of water uptake of cut flowers depends on transpiration pull, temperature and composition of solutes. Disruption of water columns in stem vessels by air embolism and resistance to water flow in stems, also develop water deficit. Acidification of water and addition of wetting agent and flower food in the holding solution markedly improve water uptake of cut flowers. **Respiration:** The rate of respiration depends on quantity of carbohydrates available in the harvested flowers, temperature and the use of certain chemicals to regulate it. With higher temperature, there is faster rate of respiration and burning of the tissue. Consequently, the life of flowers is shortened. **Relative humidity:** It has, bearing on the transpiration rate. Higher the humidity in the air, less is the transpiration rate and vice-versa. **Growth regulators:** Postharvest life of flowers can be controlled by growth regulators. Water relation changes associated with flower senescence are also influenced by growth regulators. Cytokinins delay senescence of some cut flowers. Depending upon the concentrations, GA in some cases promotes longevity of flowers, while this is also used in	CBSE Study Material	Unit III	100, 101	**4**

	bud opening solution. The IAA promotes ethylene production of isolated carnation petals. In contrast, the senescence and abscission of poinsettia flowers is delayed by auxin. **Preservative solution:** Preservatives in the form of tablets or powder are prepared from a mixture of chemicals-sugars, germicides, salts and growth regulators. Various types of conditioners are sugar and biocide, antiethylene compound, and hydrated compound. The flowers like gladiolus, carnation, chrysanthemum and freesia are benefited most by the pretreatment. Anti-ethylene compounds in preservative solutions reduce the action of ambient ethylene as well as autocatalytic production of ethylene by fresh cut flowers. Fresh cut flowers responding to silver thio sulphate are carnation, orchids, gypsophila, gladiolus, gerbera, snapdragon, alstromaeria, agapanthus, anemone and sweet pea. Greatest improvement in cut flower quality and longevity is obtained when DICA or DDMH were combined with sucrose. **Pre-cooling and storage:** Precooling is essential for removing field heat from flowers. This is done either by forced air cooling or hydrocooling to bring down temperature from 20^0-30^0C to 1^0C in a relatively short period. Other methods are room cooling and vacuum cooling. Flowers can be stored for a longer period at low temperature. There are two methods of cold storage-wet and dry. Wet method is short-term storage, in which cut stems are dipped in water. Dry storage is more labour-intensive method and costly. The controlled atmosphere based on reduction of respiration rates, conservation of respirable substrates during, storage, and delay in ethylene-triggered changes cause senescence. It involves the use of increased level of CO_2 and decreased levels of O_2 in the atmosphere, low storage temperature and prevention of the build-up of endogenous ethylene. **Packing and transporting:** Lower rate of transpiration, respiration and cell division during transportation, are essential for long				

	storage life and keeping quality. Before packing, flowers should be dried. They should be treated with systemic insecticides and miticides. Packing must ensure protection of flowers against physical damage, water loss and external conditions detrimental to transported flowers. Boxes made of corrugated fibre boards are good. Flowers sensitive to geotropic bending must be transported in an upright position. The flowers should be transported at an optimal low temperature. The relative humidity of the air during precooling and shipment of cut flowers should be maintained at the level of 95-98%. Lack of light during prolonged transportation particularly at high temperature causes yellowing of leaves in many flowers. Shipment of flowers is usually done by road, air and sea. For short distance and time period shorter than 20 hr, cut flowers may be transported in insulated trucks without refrigeration after precooling and proper packing. Air shipment is quickest and usually the temperature is not controlled during the flight the flowers should be pulsed with STS prior to air shipment.				
Q. 23	**Principles of Landscape Gardening** **A. Balance: -**Balance is a psychological sense of equilibrium. As a design principle, balanceplaces the parts of a visual in an aesthetically pleasing arrangement. In visual images, balance is formal when both sides are symmetrical in terms of arrangement. Balance is informal when sides are not exactly symmetrical, but the resulting image is still balanced. Informal balance is more dynamic than formal balance and normally keeps the learner's attention focused on the visual message. There are three main types of balance, horizontal balance, vertical balance, radial balance. **B. Proportion: -**Proportion refers to the relative size and scale of the various elements in a design. The issue is the relationship between objects, or parts, of a whole. This means that it is necessary to discuss proportion in terms of the context or standard used to determine proportions.	CBSE Study Material	Unit V	185, 186	**4**

	C. Perspective: -Perspective is created through the arrangement of objects in two-dimensional space to look like they appear in real life. Perspective is a learned meaning of the relationship between different objects seen in space. Is the dark rectangle in front of a circle, or beside a semi-circle? Perspective adds realism to a visual image. The size of a rectangle means little until another object gives it the size of a desk, or the size of a building. Perspective can be used to draw the audience into a visual. Perception can be achieved through the use of relative sizes of objects, overlapping objects, and blurring or sharpening objects. **D. Emphasis: -**Emphasis is used by artists to create dominance and focus in their work. Artistscan emphasize color, value, shapes, or other art elements to achieve dominance. Various kinds of contrast can be used to emphasize a center of interest. **E. Movement: -**The way the artist leads the eye in, around, and through a composition. The path the eye follows. Motion or movement in a visual image occurs when objects seem to be moving in a visual image. Movement in a visual image comes from the kinds of shapes, forms, lines, and curves that are used. **F. Pattern: -**Pattern uses the art elements in planned or random repetition to enhance surfaces or paintings or sculptures. Patterns often occur in nature, and artists use similar repeated motifs to create pattern in their work. Pattern increases visual excitement by enriching surface interest. **G. Repetition: -**Repetition works with pattern to make the artwork seem active. The repetition of elements of design creates unity within the artwork. **H. Rhythm: -**Rhythm is the repetition of visual movement of the elements-colors, shapes, lines, values, forms, spaces, and textures. Variety is essential to keep rhythms exciting and active, and to avoid monotony. Movement and rhythm work together to create the visual equivalent of a musical beat.				

	I. Variety: -Variety provides contrast to harmony and unity. Variety consists of the differences in objects that add interest to a visual image. Variety can be achieved by using opposites or strong contrasts. Changing the size, point of view, and angle of a single object can add variety and interest to a visual image. **J. Harmony: -**Harmony in visual design means all parts of the visual image relate to and complement each other. Harmony pulls the pieces of a visual image together. Harmony can be achieved through repetition and rhythm. Repetition reemphasizes visual units, connecting parts and creating an area of attention. Rhythm is the flow depicted in a visual. Rhythm helps direct eye movement. Patterns or shapes can help achieve harmony. By repeating patterns in an interesting arrangement, the overall visual image comes together. **K. Unity: -**Unity means the harmony of the whole composition. The parts of a composition made to work together as a total visual theme. Unity is the relationship among the elements of a visual that helps all the elements function together. Unity gives a sense of oneness to a visual image. In other words, the words and the images work together to create meaning. **L. Contrast: -**Contrast is in opposition to harmony and should not be overdone. Occasional contrasts are used to create an eye-catching feature in a garden; for example, contrasting foliage texture, colour or form provides a focal point in the garden.				
Q. 24	**Components of Jam** **Fruit Pulp: -**45% **TSS: -**68% **Acidity: -**0.5-0.6% **Water: -**33-38% **Processing of Jam** **Selection of fruit: -**Fully ripe fruit should be harvested for Jam making. Jam is best fruit for Jam making. Pineapple, carrot, strawberry, banana, peach, pear also used for jam making. **Washing/Cleaning of fruit:** - Fruit should be cleaned by clean water.	CBSE Study Material	Unit IV	129,133	**4**

	Preparation of Fruit: -Fruit should be peeled and remove of core material for Jam making. **Blanching:** - Blanching is the heating of fruit or vegetables for a short time with either steam or water, and is an essential step before canning, drying or freezing of food. This heating process is not meant to cook the food but to inactivate substances that would otherwise adversely affect the nutrient content, colour, flavour or texture during subsequent processing and storage. **Cooking with Sugar**: - Fruit pulp start cooking with 1/3 quantity with sugar. Aftersome time add remaining sugar. **Adding of Citric Acid**: - For enhancement of test citric acid should be added at 103^{o}Ctemperature. **Judging of End-Point: -** **Sheet or Flake test: -**A small portion of jam is taken out during boiling, in a spoon or wooden ladle and cooled slightly, it is then allowed to drop. If the product falls off in the form of a sheet or flakes instead of flowing and a continuous stream or syrup, it means that the end-point has been reached and product is ready, boiling is continued till the sheet is positive. **Temperature: -**105^{0}C. **TSS:** - 68-70% **Weight Test:** - If total weight of jam is 1.5 time is more than sugar weight, jam is prepared. **Packing: -**Jam should be fill in glass jar. **Storage: -**Jam should be stored at dry and cool place.				

Flow-Sheet for Processing of Fruits Jam