

Sample Question Paper

Agriculture (Theory)

Class XII

Time : 3 hours

M. M : 70

General Instructions :

- (i) All questions are compulsory.
- (ii) Marks for questions are indicated against each of them.

Q.1 (A) Define commercialisation of agriculture. Give its two objectives. Name two major commercial crops of India.

1+2+2=5

(B) Write five major soil groups of India. Give two major characteristics of alluvial soils.

3+2=5

Q.2 Write brief notes on the following :

2x5=10

- (i) Soil tilth
- (ii) Black cotton soils
- (iii) Two green manuring crops.
- (iv) Cultural methods of weed control.
- (v) Raising fertilizer use efficiency.

Q.3 (A) Fill in the blanks:

5

- (a) Scientific name of berseem is _____.
- (b) *Cyperus rotundus* is propagated through _____.
- (c) Zinc deficient soils in North India normally needs application of _____ to _____ kg/ha of Zinc-Sulphate.
- (d) Percent content of P_2O_5 in single super phosphate is _____.
- (e) Place of origin of wheat is _____.

Q.3 (B) Differentiate between the following :

5

- (a) Cereals and Legumes
- (b) Soil texture and soil structure
- (c) Flood irrigation & Furrow irrigation.
- (d) Drilling of seeds & dibbling of seeds.
- (e) Transplanted rice and direct seeded rice.

Q.4 Describe the cultivation of rice and groundnut crop under the following heads:

2x5

- (i) Scientific name.
- (ii) Place of origin.
- (iii) Seed rate per hectare.
- (iv) Processing of the produce for the market.
- (v) One major insect and one major disease.

Q.5 (A) Match the following:

5

Crops	Propagated by
(i) Gladiolus	(i) Seed
(ii) Banana	(ii) Corm
(iii) Roses	(iii) Suckers
(iv) Marigold	(iv) Budding
(v) Cannas	(v) Rhizomes

Q.5 (B) Differentiate between the following:

5

- (i) Trees and Shrubs
- (ii) Annuals and Perennials
- (iii) Cutting and Layering methods of Propagation
- (iv) Training and Pruning
- (v) Hedges and Edges

Q.6 Describe the cultivation practices of cauliflower and gladiolus on the following points:

2x5

- (i) Scientific name
- (ii) Seed rate per hectare
- (iii) Processing for the market
- (iv) Manuring Schedule
- (v) Name of one major insect and one major disease.

Q. 7. Describe the cultivation of Mango and Guava on the following points.

2x5

- (i) Scientific name.
- (ii) Two major propagation methods.
- (iii) Two important commercial varieties.
- (iv) One major insect and one major disease.
- (v) Manuring schedule for bearing plant/tree.

Answering Scheme
Agriculture (Code No. 068)
Theory Paper
Class XII

Time : 3 hours

M. M : 70

General Instruction :

- (i) All question are compulsory
- (ii) Marks for questions are indicated against each of them.

- Q.1 (A) (a) Commercialization denotes growing of crop(s), the produce of which may be processed for value addition and marketing locally, nationally and/or internationally for higher profits whenever such a demand exists. In practice a large contiguous area in a region is put under such a commercial crop(s). This may be achieved through diversification of the existing cropped area and cropping patterns through substitution with the area specific commercial crops.
- (b) Two major objectives of commercialization of agriculture are :
- (i) To augment the total income of the farmer per unit area and input applied to the commercial crop.
 - (ii) All the field and management operations are common for commercial crops hence crop management is economical.
- (c) Two major commercial crops are :
- (i) Cotton (ii) Sugarcane
- (B) Five major soil groups of India are :
- (i) Alluvial soil
 - (ii) Black cotton soil
 - (iii) Red Lateritic soil
 - (iv) Red soil
 - (v) Hill soil

Characteristics of alluvial soil are :

- (i) These are extensively deep soils formed by alluvial deposits by major rivers. These are sandy loam to clay loam in texture.
- (ii) These soils are neutral to moderately alkaline in reaction (pH 6.5 to 7.5) and are mostly calcareous in sub-soil (strata)

Q.2. Short Notes

(i) Soil Tilth:

It represents the physical condition of the soil with respect to planting and growth of field crops. Tilth means the cultivation of soils, primary tillage for preparation of soil, for pre planting/preseeding i.e., preplanting cultivation. Secondary tillage which denotes cultural operations carried out for sowing/ planting/ interculturing / earthing up etc.

(ii) Black cotton soils:

Two major characteristics of these soils are :

- (a) These are derived from deccan trap, which are known as regur or black cotton soil. These are loam to clay in texture, have high water holding capacity (WHC).
- (b) These soils develop deep cracks in summers particularly in areas consisting primarily of predominantly montmorillonite type of clay varying between 40 and 60 percent.

(iii) Green manuring crops:

Major Green Manuring (GM) crops are:

- (a) Sannhemp
- (b) Dhaincha

Both crops are grown in South-west (monsoon season during summer months under irrigated conditions. These are ploughed into the soil by flowering stage (30-40 days after sowing), but before sowing the next crop.

They add organic matter and add 70 to 80 kg nitrogen per hectare by biologically fixing free atmospheric nitrogen.

(iv) Cultural methods of weed control are :

- (a) These are used to provide weed free condition to the crops.
- (b) Use clean tillage equipment
- (c) Intercultural operations
- (d) Hand weeding
- (e) Intercropping

(v) Raising of fertilizer use efficiency :

- (a) Applying fertilizers based on soil test values.
- (b) Use organic manures, green manures.
- (c) Incorporation of crop residues
- (d) Include legumes in crop sequences.
- (e) The proper method of application.

Q.3 (A) Fill in the blanks:

- (a) *Trifolium alexandrinum*
- (b) Nuts
- (c) 20 - 25 kg Zinc sulphate/ha
- (d) 16 percent P_2O_5
- (e) Central Asia

Q.3 (B) Differentiation:

<p>(a) Cereals</p> <p>Cereals are big crops belonging grass family (gramineal) which are grown for food purposes, edible portion is highly starchy. It is botanically cariopsis. Cereal means grains of rice, wheat, barley, maize, sorghum, millets etc.</p>	<p>Legumes</p> <p>The word legume is derived from the latin word legre (to gather) because pods are harvested (gathered) by hand, these belong to family Leguminoseae. These have nitrogen fixing nodules on their roots and they fix nitrogen through Rhizobium. Legumes crops are all pulses e.g. pigeonpea, gram, pea etc.</p>
<p>(b) Soil Texture</p> <p>Soil texture is an expression of the distribution of various particles present in the soil. A soil may be described as coarse, medium or fine (heavy) textured depending on predominance of different primary soil particle sizes e.g. sand (coarse and fine), silt and clay. There are textural classes like clay, sandy clay, loam, clay loam, loamysand etc.</p>	<p>Soil Structure</p> <p>The combination of arrangement of primary soil particles into secondary particles i.e. groups of aggregates mostly bounded together by cementing agents like organic matter into secondary aggregates of varying sizes and shapes like platty, prismatic, columnar, granular, crumb.</p>
<p>(c) Flood Irrigation</p> <p>Flooding the soil with irrigation is watersurface irrigation method. Prior to applying flood irrigation, proper levelling and grading of land is a must. Normally, water use efficiency is low in flood irrigation particularly in canal command areas. It is followed in rice and other water loving crops. It causes water logging and salinization of soil. There are very heavy losses. Flood irrigation is substituted by gated pipes, surface irrigation</p>	<p>Furrow Irrigation</p> <p>In furrow irrigation water is diverted to a head ditch or a pipeline along the upper edge of the field and then it is diverted into a parallel furrow running down with flow. It is adopted in a variety of slopy crops and topography. The longer the furrow, heavier is the percolation losses of water. The furrow length varies from 13m in sandy soil to 300m in heavy soils.</p>
<p>(d) Drilling of seeds</p> <p>The practice of placing of the seeds in rows at a proper row to row and plant to plant spacing using a uniform seed rate and controlled soil depth with or without covering the seed with soil. It is done by pora (funnel) method or by mechanical seed-drill or by</p>	<p>Dibbling of seeds</p> <p>Dibbling is method of sowing or planting of crop seeds in the hole made manually by using a dibbler by which specific spacing of optimum plant population is maintained. This is used for planting of seeds of vegetables and field crops like cole crops, rice, maize etc. Dibbling machines are easily available.</p>

fertiseed-drill. The objective is to obtain the optimum plant population per unit area and to economise on seed rate.	
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(e) Transplanted Rice	Direct seeded Rice
This is the best system of rice culture. In this system the land is ploughed 2-3 times with 5-6 cm standing water in the field called puddling. The aim of puddling is to soften the soil for easy planting of seedlings. It reduces infiltration losses of water and leaching of nutrients. Seedlings from the nursery should be healthy, 4-5 leaf stage of 20-25 cm height. Two-three seedlings per hill be planted keeping the depth of 2-4 cm at 15x15 cm spacing.	Direct seeded rice may be grown under wet or dry seeding condition. Wet seeded rice is sown on a puddled seed bed with pre-germinated seed after draining excess water from the field to ensure good germination and stand of the crop. The seed is usually sown broadcast either by hand or using seed drill. The seed rate is maintained at 80-100 kg/ha. In dry seeded rice seeds are broadcast or sown by pora method or by a seed drill. The major disadvantage of direct seeded rice are bird and insect damage, seeds may be washed away by heavy rain, weed problem is high and hard, that is why yield of direct seeded rice is low.

Q. 4

Cultivation of rice	Cultivation of groundnut
<ol style="list-style-type: none"> Oryza sativa South East Asia 80-100 kg/ha (Direct seeding) 20-25 kg/ha (Transplanting) Cleaning, drying, grading, bagging and labelling Rice stem borer Rice blast 	<ol style="list-style-type: none"> Arachis hypogea Brazil 80-110 kg/ha (Bold seeded) 60-75 kg/ha (Small seeded) Cleaning, Drying, grading, bagging and labelling Pod borer Tikka disease

Q.5 (A) Match the following :

- | | | |
|--------------|---|---------|
| 1. Gladiolus | - | corm |
| 2. Banana | - | Suckers |
| 3. Roses | - | Budding |
| 4. Marigold | - | Seed |
| 5. Cannas | - | Rhizome |

(B) **Differentiation :**

(i) **Trees and Shrubs**

- Trees are perennial, tall with marked trunk. The height of full grown trees is normally more than 15 feet.
- They grow for several years, bear flowers and fruits.
- They provide us fruits, shelter, shade, fuel wood & timber wood.

- d) Mostly used as specimen for avenue plantation.
Examples - Neem, Sisham, Peepal

Shrubs

- a) They produce beautiful flowers at eye level and fragrant shrubs at nose level. Their height is normally below 10'
- b) Display their beauty by richly coloured flowers, beautiful shape, handsome and variegated foliage.
- c) They are very popular in gardens for boundary wall, screening purposes to hide unwanted places like manure pits, dust bins and also to separate the area as ladies corner or children corner.
- d) They have branches from the base and thus grow densely.
- e) Cutting back or pruning their growth is very important to improve the performance of the plant.

Examples - Chandani, Kaner, Jetropha, Raat ke Rani, Acalypha

(ii) Annuals and Perennials

Annuals or seasonals are the group of plants which complete their life cycle in one season or one year. They exhibit a good show of blooms at low cost & labour.

Examples: Pansy, Petunia, Marigold, Calendula.

Perennials are those group of plants which survives for several years.

Examples: Raat ki Rani, Roses, Bougainvillea etc.

(iii) Cutting and layering methods of propagation

- a) The cuttings are first detached from the scion plant and then rooted while in layering, the branch is first rooted on the scion plant and then detached.
- b) The percentage of success is more in layering than in cutting.
- c) Propagation of plants through cutting is easier and economical while through layering, it is expensive and cumbersome.

(iv) Pruning and training of plants

Training primarily concern the form and its purpose is to establish the frame work of the plant with systemic distribution of various parts on support to obtain maximum benefit. The plant is provided or tied with some support. This is more common in plants having tender growth and climbing habit. Its requirement is mostly in the initial stage of plant growth. For example, in grapes and chrysanthemum.

Pruning comprises the removal of certain parts of the plant affecting the physiological function in promoting better quality products. It also assists in a better distribution of the produce and to maintain it in a manageable form. In this respect it also facilitates training. Pruning is normally practiced in the dormant stage of the plants. Example - Roses, Apple.

(v) Hedges and edges

Hedge:

- a) When shrubs are planted on boundary for fencing, it is called as hedge.
- b) They can be trimmed to get different shapes.
- c) They are normally taller in height which is more than 2' and hard in nature.

iv) Manuring Schedule

500 Kg/ha FYM or compost one month before planting.

NPK - 150 : 150 : 200 Kg/ha at the time of planting.

75 kg N/ha at 3 leaf stage.

75 kg N/ha at 6 leaf stage.

(v) **Major insect**

Thrips

Major disease

1. wilt or color rot

Q.7. Cultivation of Mango and Guava:

		Mango	Guava
i)	Scientific name	Mangifera Indica	Psidium guajava
ii)	Two major propagation methods	Inarching Vencer grafting	Inarching Air layering
iii)	Two important commercial varieties	Dashari, langara	Allahabad Safeda, Chittidar
iv)	One major insect and disease	Mango hoppers Mango malformation	Fruit fly Guava wilt
v)	Manuring schedule for bearing plant/tree	In the month of June 100-150 fym/ha 8 to 10 Kg N 2 Kg P 1 Kg K	100-150 Kg. leaf mould 3 Kg. ground nut cake 2 Kg. Ammonium sulphate

Marking Scheme
Subject : Agriculture
Class - XII

Q. No.	Expected Answer/Value Points	Distribution of Marks Total	
Q.1	(A) Define commercialization of agriculture.	1	
	Give its two objectives	2	
	Name two major commercial Crops of India	2	
	(B) Write five major soil groups of India	3	
	Write two major characteristics of alluvial soils	2	
Q.2	Short Notes:		
	(i) Soil Tilth	2	
	(ii) Black cotton soils.	2	
	(iii) Two green Manuring Crops.	2	
	(iv) Cultural Methods of weed control	2	
(v) Raising of fertilizer use efficiency.	2		
Q.3	(A) Fill in the blanks :		
	(a) Trifolium - alexandrinum	1	
	(b) Nuts	1	
	(c) 20-25 kg Zinc Sulphate/ha	1	
	(d) 16 percent P ₂ O ₅	1	
	(e) Central Asia	1	
	(B) Differentiate between the following:		
	(a) Cereals and Legumes	1	
	(b) Soil Texture and soil Structure	1	
	(c) Flood irrigation and furrow irrigation	1	
	(d) Drilling of seeds and dibbling of seeds	1	
(e) Transplanted Rice and Direct seeded Rice	1		
Q.4	Cultivation of Rice	Cultivation of Groundnut	
	(i) Oryza sativa	Arachis hypogea	1,1
	(ii) South East Asia	Brazil	1,1
	(iii) 80-100 kg/ha	80-110 kg/ha	1,1
	(Direct seeding)	(Bold seeded)	
	20-25 kg/ha	60-75 kg/ha	
	(Transplanting)	(small seeded)	
	(iv) Cleaning, drying	Cleaning, Drying, grading,	1,1
grading, bagging and labelling	bagging and labelling		

	(v) Rice stem borer, Rice blast		Pod borer Tikka disease	1,1
Q.5	(A) Match the following:			
	(i) gladiolus	-	Corm	1
	(ii) Banana	-	Sucker	1
	(iii) Roses	-	Budding	1
	(iv) Marigold	-	Seed	1
	(v) Cannas	-	Rhizome	1
	(B) Differentiate between the following:			
	(i) Trees and shrubs			1
	(ii) Annual and Perennials			1
	(iii) Cutting and layering			1
	(iv) Training and Pruning			1
	(v) Hedge and Edges			1
Q.6	Cultivation of Cauliflowers		Cultivation of gladiolus	
	(i) Brassica - aleracea		Gladiolus grandiflorus	1,1
	(ii) 500g to 700g /ha		1,50,000 corms	1,1
	(iii) Processing for Market		Processing for Market	1,1
	(iv) Manuring schedule		Manuring Schedule	1,1
	(v) one major insect and disease		one major insect and disease	1,1
Q.7	Cultivation of Mango		Cultivation	
	(i) Mangifera-indica		Psidium - guajava	1,1
	(ii) Inarching, Vinear - grafting		Inarching, Air layering	1,1
	(iii) Dashari, Langra or any two varieties		Allahabad safeda, chitlidar or any two varieties	1,1
	(iv) Mango hoppers, Mango Malformation		Guava wilt fruit fly	1,1
	(v) In the month fo June 100-150 kg/fym 8-10 kg N 2 kg P 1 kg K		100-150 kg leaf mould 3 kg ground nut cake 2 kg Ammonium sulphate	1,1