

**NATIONAL VOCATIONAL TRAINING INSTITUTE  
TESTING DIVISION**

**REGULATIONS AND SYLLABUS**

**TRADE: GENERAL AGRICULTURE**

**LEVEL: CERTIFICATE ONE**

## TRADE TEST CERTIFICATE ONE

### A. INTRODUCTION

- i. The review of this syllabus has been generally influenced by the demands of industries due to its continuous change as a result of technological advancement and the changing needs of society.

It was also influenced by the TVET reforms under the directions of the new educational reforms with the view to opening up further education and training opportunities to TVET graduates. The certificate ONE syllabus is designed to respond to the following level descriptors:

<b>QUALIFICATION</b>	<b>KNOWLEDGE LEVEL</b>	<b>SKILLS AND ATTITUDE:</b>
Certificate 1	<ol style="list-style-type: none"><li>1. To demonstrate a broad knowledge base incorporating some technical concepts.</li><li>2. To demonstrate knowledge of the theoretical basis of practical skills.</li><li>3. To demonstrate knowledge in numeracy, literacy, IT and Entrepreneurial skills</li></ol>	<ol style="list-style-type: none"><li>1. Require a wide range of technical skills</li><li>2. Are applied in a variety of familiar and complex contexts with minimum supervision.</li><li>3. Require collaboration with others in a team</li></ol>

- ii. Knowledge in the safe use of Agricultural tools, equipment, materials, water supply (quality of water), drainage farm sanitation, trade drawing, science and calculations

## **B. THE GENERAL OBJECTIVES**

On completion of this course, the trainee should be able:

- i) understand the source and properties of quality water
- ii) to develop the skills or correct handling and use of Agricultural tools and equipment.
- iii) to understand the general principles related to land layout and use for production (of crops, animals etc)
- iv) to understand the formation and properties of soil related to Agriculture
- v) to identify and apply soil and water conservation and management strategies
- vi) to understand the safety precaution and maintenance of the use of Agricultural tools and equipment
- vii) to understand the factors and control of soil erosion
- viii) to develop in trainees the storage and processing of Agricultural produce to reduce post-harvest losses
- ix) to develop in trainees the skills involved in drawing, trade drawing , trade science and calculations

## **C. THE COURSE COMPRISES**

Trade Theory  
Science and Calculation  
Drawing  
General Paper  
Practical work

Practical work must be carefully planned to illustrate application of the theory and to provide maximum skills and understanding for on farm, laboratory work and demonstration.

## **D. KNOWLEDGE AND SKILLS REQUIREMENT**

The prime objective of the Agricultural programme is to provide knowledge and skills of the trade in a manner that will best meet the needs of the trade as well as industries depending on Agriculture for production.

**E. ENTRY TO THE COURSE**

Minimum education : Must have passed JHS or SHS examination. However, the selection of trainees for the course is within the discretion of the Head of the Institution.

**F. ELIGIBILITY FOR ENTRY TO EXAMINATION**

Candidates may enter for examination only as internal candidates, that is those who, at the time of entry to the examination, are undertaking (or have already completed) the course at an approved establishment.

**G. EXTERNAL EXAMINERS**

The practical work of candidates will be assessed by an external examiner appointed by the Testing Commissioner.

**H. EXAMINATION**

The components for the examination for Graphic Design are as listed below:

1. Trade Theory
2. Trade Science and Calculation
3. Trade Drawing
4. General Paper
5. Trade Practical

**I. EXAMINATION RESULTS AND CERTIFICATES**

Each candidate will receive record of performance for the components taken. These are:

- i) Distinction
- ii) Credit
- iii) Pass
- iv) Referred/Fail

Certificates would be issued to candidates who would pass all the components.

## **NOTE**

All Technical and Vocational trainees who aspire to take advantage of the opportunities opened to them in the educational reforms should NOTE that, for a trainee to progress to certificate Two (2) a pass in Certificate One (1) is compulsory.

## **J. APPROVAL OF COURSE**

Institutions or other establishments intending to prepare trainees for the Examination must apply to:

THE COMMISSIONER  
TESTING DIVISION  
NVTI HEAD OFFICE  
P. O. BOX MB 21, ACCRA

## **K. ACKNOWLEDGEMENT**

NVTI wishes to acknowledge the preparatory material done by the team of experts, which have been incorporated into this syllabus.

Mr. John Harrison Addai (Dip, B. Ed, M.Sc-Agric)  
Mr. Francis Atta Boateng (Dip, B.Ed-Agric)

Government's desire to improve the lot of Technical/Vocational Training, which led to the preparation of this syllabus, is hereby acknowledged.

## **1. LIST OF TOOLS/EQUIPMENT**

### **i. SIMPLE FARM TOOLS**

Cutlass, Hoe, Mattock, Spade, Shovel, Garden Line, Garden Fork, Rake, Watering Can, Tape Measure, Hand Trowel, Shears, Secateurs, Wheel Barrow, Budding Knife, Emasculators, Sickle, Head Pan, Pick Axe, Axe.

### **IMPLEMENTS**

Ploughs, Harrow, Cultivators, Planters, Ridge, Sheller, Harvester

### **EQUIPMENT**

Tractors, Power Tiller, Bulldozer, Incubator , spraying machines

## **RECOMMENDED BOOKS**

1. Essential Agricultural Science  
(O. A. IWENA)
2. General Agriculture for Senior Secondary Schools  
(Ministry of Education, Ghana)
3. Systematic Approach to Agricultural Science  
(Osei Asibey Antwi)
4. West African Agriculture  
(J.A. Kwarteng & M.J. Towler)
5. Introduction to Agricultural Mechanisation  
(R.N. Kaul and C.O. Egbo)

**CERTIFICATE ONE - TRADE THEORY**

<b>ITEM</b>	<b>TASK</b>	<b>CRITICAL POINTS</b>	<b>SUB POINTS</b>	<b>INSTRUCTIONAL TECHNIQUES</b>
1.0	<p><b>INTRODUCTION TO AGRICULTURE</b></p> <p>1.1. Meaning and Importance of Agriculture</p> <p>1.2. Interdependency of Agriculture and Industry</p> <p>1.3. Various Fields of Agriculture</p>	<p>a. Growing of crops and rearing of animal for man's use</p> <p>b. Provision of Food, shelter, raw materials, employment, income, foreign exchange</p> <ul style="list-style-type: none"> <li>• Agriculture provides food for industrial workers</li> <li>• Ready market for industrial products</li> <li>• Initial capital formation, release surplus labour to industry.</li> <li>• Industry provides – tools and services to agriculture</li> <li>• Employment of surplus labour from agriculture</li> </ul> <p>Crops and horticulture, soils, surveying, economics, extension, farm mechanization, forestry, fisheries, animal product, mushroom, grasscutter, snail, bee-keeping (non traditional)</p>	<p>The study about produce from agriculture</p> <p>The study of agro-based industries and the agric-raw materials used for their finished products.</p> <p>The study of branches of agriculture</p>	<p>Samples of various agricultural produce and their uses or benefits</p> <p>Educational visit to some agro-based industries</p> <p>Industries exposing the opportunities available in the studies of agriculture</p>

**CERTIFICATE ONE - TRADE THEORY**

ITEM	TASK	CRITICAL POINTS	SUB POINTS	INSTRUCTIONAL TECHNIQUES
	<p><b>INTRODUCTION TO AGRICULTURE</b></p> <p>1.4. Problems associated with agriculture in Ghana</p>	<ul style="list-style-type: none"> <li>• Land Tenure system</li> <li>• Climate and soils</li> <li>• Low income</li> <li>• Lack of input</li> <li>• Poor marketing system</li> <li>• Poor storage facilities</li> <li>• Diseases and pests</li> </ul>	<p>The study about problems facing the Ghanaian farmer</p>	<p>Instructor leads the trainees to identify problems facing Ghanaian farmers</p>
2.0.	<p><b>CROP PRODUCTION AND HORTICULTURE</b></p> <p>2.1. Classification</p>	<p>i. <u>Maturity period (grown cycle)</u> Annuals, biennials and Penennials</p> <p>ii. <u>Scientific classification</u> E.g Grammae, Leguminoceae, Solonaceae, botanical</p> <p>iii. <u>Method of cultivation</u> Broadcasting, direct sowing/insitu, drilling, nursing</p> <p>iv. <u>Parts eaten</u> Mature fruits – mango, avocado, Immature fruits – okro, french Beans Leaf – Cabbage, lettuce Root – Carrots, radish, turnip Stem – Ginger Bulb – Onion, garlic, shallot</p>	<p>The study about different crops, groups and their features</p> <p>Thinning out, pricking out, transplanting, hardening off, refilling etc.</p> <p>Nutritional value</p>	<p>Instructor to assemble different samples of crops and lead trainees to classify them</p> <p>Trainer to guide trainees understand the practices mentioned</p> <p>Trainer to lead trainees to cultivate different crops classified</p>

**CERTIFICATE ONE - TRADE THEORY**

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3.0	<p><b>PRINCIPLES OF CROP PRODUCTION</b></p> <p>3.1 Land clearing types</p> <p>3.2. Seed bed preparation methods</p> <p>3.3. Seed sowing methods</p> <p>3.4. Reasons for Nursery Management Practices</p> <p>3.5. Factors necessary for setting up nursery</p>	<p>Complete: Total cutting down of vegetation</p> <p>Partial: Cutting down of vegetation but leaving some selected trees to remain</p> <ul style="list-style-type: none"> <li>• Use of tractor to plough, harrow, prepare ridges</li> <li>• Use of hoe or cutlass to weed, vegetable bed preparation.</li> </ul> <p>Broadcasting: Scattering the seeds on bed            Direct sowing: Sowing without nursing            Drilling: Sowing seeds in shallow grooves.</p> <ul style="list-style-type: none"> <li>• To give proper care to seedlings</li> <li>• To ensure uniform germination and growth of seedlings etc.</li> <li>• Nursery close to reliable source of water</li> <li>• Nursery close to the farmer, soil, sunlight, topography, etc.</li> </ul>	<p>Weedicides may also be used to kill weeds</p> <p>Weedicides must be treated in detail.</p> <p>Removal of stumps before seed bed preparation</p> <p>Other nursery practices include pricking out, thinning-out, hardening off, watering etc.</p> <p>Nursery soil should be sterilized</p> <p>Seeds should be nursed in seed boxes or on nursery beds</p>	<p>Facilitator leads trainees on land clearing types</p> <p>Facilitator to supervise seedbed preparation</p> <p>Facilitator to use chalkboard and nursery site</p> <p>Use of chart</p>

**CERTIFICATE ONE - TRADE THEORY**

<b>ITEM</b>	<b>TASK</b>	<b>CRITICAL POINTS</b>	<b>SUB POINTS</b>	<b>INSTRUCTIONAL TECHNIQUES</b>
4.0	<b>CULTURAL PRACTICES</b>  4.1. Field Activities	Success of crop growth depends on-watering, stirring, weed control, mulching, pruning, fertilization, disease and pest control etc.	Cultural practices must be carried out using appropriate tools. Weeds must be discussed in detail	Facilitator to use appropriate tools for demonstration
5.0	<b>HARVESTING METHODS</b>	Appropriate tools for harvesting include machines, simple tools etc.	For effective harvesting, suitable tools must be used	Facilitator to use available tools or pictures for demonstration
6.0.	<b>STORAGE OF CROP</b>  6.1. Equipment for Storage	Equipment include silos, freezers, driers, crib, etc.	Storage process may include: cleaning, sorting out, drying, putting produce in suitable container	Facilitator to visit storage sites with trainees
7.0	<b>USES OF CROPS</b>  7.1 Specific Uses	E.g. Maize: Food for man, feed for animals, alcohol production etc.	Major uses of crops only needed	Facilitator uses chalkboard or prepared chart
8.0	<b>FARMING SYSTEMS</b>  8.1. Definition and types	A farming enterprise which may be entirely animal or crop based or a mixture of the two. E.g. Mono-cropping Mixed-cropping Continuous cropping etc.	Advantages and disadvantage of each system must be discussed	Facilitator to use school garden for demonstration
9.0	<b>SELECTED CROPS TO BE TREATED</b>  9.1. Crops types: Cereals, legumes, vegetables, fruits, spices	Crops must be studied under: Origin, distribution, climate and soil requirement, cultural practices, processing, storage, uses etc.	Cultural practices of crops under cultivation must be emphasized	Organize field demonstration of treated crops

**CERTIFICATE ONE - TRADE THEORY**

<b>ITEM</b>	<b>TASK</b>	<b>CRITICAL POINTS</b>	<b>SUB POINTS</b>	<b>INSTRUCTIONAL TECHNIQUES</b>
1.0	<p><b>INTRODUCTION TO ANIMAL PRODUCTION</b></p> <p>1.1 Uses of livestock animals</p> <p>1.2. Kind of livestock animals, local and exotic</p> <p>1.3. Animal Products and By-Products</p> <p>1.4. Problems associated with livestock production in Ghana</p>	<p>Uses of livestock: For food – meat, egg, milk For transport and work For income, research etc.</p> <p>Cattle: Local: N’dama white, Fulani etc. Exotic: Aberdeen, Friesian etc.</p> <p>Wool, hide and skin, horn, blood, bones, feaces, feathers, etc.</p> <ul style="list-style-type: none"> <li>• Inadequate of feed and poor feeding system</li> <li>• Climatic hazards</li> <li>• Diseases and pests</li> <li>• Poor marketing etc.</li> <li>• Land</li> </ul>	<p>Livestock parts like horns, skin, hide, lard, bones etc. can also be used for other purposes</p> <p>Other livestock Sheep: Yankasa, Fellata (local)</p> <p>Australian merino (exotic)</p> <p>Others are egg, shell, hoof, etc.</p> <ul style="list-style-type: none"> <li>• Inadequate of incentives</li> <li>• Low budget in the government policy</li> <li>• Inadequate in-service training</li> </ul>	<p>Facilitator leads trainees to discuss the uses</p> <p>Facilitator to leads trainees list samples of livestock</p> <p>Facilitators to discuss with trainees the various products and by products of animals</p> <p>Facilitator leads discussion on problems of animal industry</p>
2.0	<p><b>ANIMAL NUTRITION</b></p> <p>2.1. Sources and function of nutrients in animals</p>	<ul style="list-style-type: none"> <li>• Water</li> <li>• Protein</li> <li>• Carbohydrate</li> <li>• Fat and oil</li> <li>• Mineral</li> <li>• Vitamin</li> </ul> <p>Name of nutrients</p> <ul style="list-style-type: none"> <li>• Water</li> <li>• Protein</li> <li>• Carbohydrates</li> <li>• Fats and oils</li> <li>• Minerals</li> <li>• Vitamins</li> </ul>	<p>Water: Part of blood:</p> <ul style="list-style-type: none"> <li>• For growth, repair tissue</li> <li>• Energy producer</li> <li>• Strength and growth</li> <li>• General body health/bone formation</li> <li>• Health growth</li> </ul> <p>Discuss sources and functions of nutrients of farm animals</p>	<p>Facilitator to lead discussion on the animal nutrition with trainees</p> <p>Facilitator to lead discussion of sources and functions of nutrients of farm animals</p>

**CERTIFICATE ONE - TRADE THEORY**

<b>ITEM</b>	<b>TASK</b>	<b>CRITICAL POINTS</b>	<b>SUB POINTS</b>	<b>INSTRUCTIONAL TECHNIQUES</b>
3.0.	POULTRY PRODUCTION			
3.1.	Kinds of poultry	List kinds of poultry: Fowls, guinea fowls, ducks, turkeys, goose etc.	Identify the kinds of poultry: General characteristics	Facilitator lead discussion
3.2.	Breed of poultry and origin	List breeds of poultry e.g. <u>Local breed:</u> Indigenous breeds  <u>Exotic breed:</u> White leghorn: Rhode Island Red Plymoth rock etc.	Discuss breeds and origin of poultry including their characteristics: E.g. Local breeds:- <ul style="list-style-type: none"> <li>• Multi-coloured</li> <li>• Late maturing</li> <li>• Small size</li> <li>• Low egg production</li> <li>• Very broody</li> <li>• Very hardy</li> </ul>	Facilitator to lead discussion
3.3.	Housing and equipment of poultry	List types of housing for poultry e.g. Brooder house, battery cage-housing, deep litter housing, house with run etc.	Discuss the nature of various poultry housing used	Facilitator to visit nearby poultry house or farm with learners to identify poultry housing units and equipment.
3.4.	Feeds and feeding	List type of feeds for poultry  E.g. mash, concentrate, etc.	Identify various poultry feeds for chicks, broiler, pullets and layers and how they are formulated.	Facilitator to supervise formulation of poultry feeds
3.5.	Incubation and hatchery management	<ul style="list-style-type: none"> <li>• Meaning of incubation</li> <li>• Hatching of eggs and hatchinery management</li> </ul>	Discuss meaning of incubation and types  Discuss hatchery management practices	Facilitator to visit recognized hatchery with trainees
3.6.	Medication regimes	List of medication regimes: E.g. various vaccines and vaccine schedules <ul style="list-style-type: none"> <li>• Poultry drugs</li> </ul>	Discuss the type of vaccines and how they are administered to poultry	Facilitator to lead trainees to identify various vaccines and drugs and their administration

**CERTIFICATE ONE - TRADE THEORY**

<b>ITEM</b>	<b>TASK</b>	<b>CRITICAL POINTS</b>	<b>SUB POINTS</b>	<b>INSTRUCTIONAL TECHNIQUES</b>
	3.7 Common Diseases and Pest of Poultry	List common poultry diseases and pests E.g. Newcastle, coccidiosis, gumboro, fowlpox and nutritional diseases like rickets  <u>Pests</u> Lice, tick, mite, tapeworm, liver fluke etc. (Endo and Ecto parasites)	Discuss poultry diseases under the following headings: <ul style="list-style-type: none"> <li>• Casual agent</li> <li>• Mode of transmission</li> <li>• Effect of the disease</li> <li>• Prevention and control</li> </ul> Discussion should include the effects of ecto and endo parasites on poultry birds	Facilitator should use pictures of diseased affected birds for demonstration  Specimens of parasites must be used to discuss parasites and their life cycles
	3.8. The Egg and Chick Formation  3.9. The Preparation of Eggs and Birds	Development of egg and the chick  <ul style="list-style-type: none"> <li>• Selection and grading of eggs for marketing</li> <li>• Processes involved in dressing of birds for marketing</li> <li>• Marketing of life birds</li> </ul>	Discuss the processes involved in egg and chick formation  Discuss how eggs are selected and graded for market  Discuss how birds are prepared for the market  Discuss the sale of life birds	Facilitator should use pictures to discuss the processes with trainees  Facilitator should demonstrate the selection and grading of eggs as well as preparation of birds for the market.  Guide trainees on the sale of life birds
4.0.	SKETCHING AND LABELLING OF PARTS OF DOMESTIC FOWL INCLUDING DIGESTIVE SYSTEM	Showing the parts including digestive system of fowl	Sketch and label the external features of a bird as well as the digestive organ	Facilitator to demonstrate the sketching and labeling of mentioned parts

**CERTIFICATE ONE - TRADE THEORY**

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5.0.	<p>RECORD KEEPING IN POULTRY</p> <p>5.1. Types of records kept</p> <p>5.2. Importance of Record Keeping in Poultry</p>	<p>List of type of record e.g.</p> <ul style="list-style-type: none"> <li>• Egg production record</li> <li>• Medication record</li> <li>• Number of birds record</li> <li>• Feeding records</li> </ul> <p>The importance of keeping records E.g.</p> <ul style="list-style-type: none"> <li>• Keeps accounts of progress of the farm</li> <li>• To help in calculation of income and expenditure</li> <li>• To help in loan acquisition etc.</li> </ul>	<p>Discuss types of records mentioned</p> <p>Discuss the importance of keeping records in poultry</p>	<p>Facilitator to lead discussion on record with charts</p> <p>Facilitator to guide trainees to identify the importance of keeping records on the farm</p>
6.0.	<p>DEFINITIONS OF SIMPLE TERMS IN POULTRY PRODUCTION</p> <p>6.1. Explanation of terminologies</p>	<p>Meaning of terminologies including: Brooding, sexing, candling, cannibalism, debeaking, culling, dubbing, caponisation, false-moulting</p>	<p>Explain the terms in simple manner as used in poultry production</p>	<p>Facilitator to lead the explanation of terms</p>



**CERTIFICATE ONE - TRADE THEORY**

<b>ITEM</b>	<b>TASK</b>	<b>CRITICAL POINTS</b>	<b>SUB POINTS</b>	<b>INSTRUCTIONAL TECHNIQUES</b>
4.0.	LAND TENURE SYSTEM  4.1. Definition Types	The way land is acquired or owned Types: <ul style="list-style-type: none"> <li>• Communal system</li> <li>• Cash lease</li> <li>• Ownership and share lease</li> </ul>	Land must be acquired legally to avoid problems	Facilitator leads discussion with trainees on land acquisition
5.0.	FACTORS OF PRODUCTION  5.1. Factors  5.2. Qualities of Good Farm Manager	Land, capital, labour, entrepreneurship  <ul style="list-style-type: none"> <li>• Social qualities</li> <li>• Technical qualities for the job</li> </ul>	Simple Definition of all E.g. Land: Refers to natural resources, such as farmland, mineral, resources of the sea, lake and rivers (natural) etc.  <u>SOCIAL QUALITIES</u> E.g. - A good farm manager must relate well with his workers. Must seek workers welfare. Must multivate workers  <u>TECHNICAL QUALITIES</u> Must have knowledge of the job. Must be interested in the job etc.	Facilitator leads discussion with trainees on factors of production.  Lead a discussing on what is expected of a good farm manage

**CERTIFICATE ONE - TRADE THEORY**

<b>ITEM</b>	<b>TASK</b>	<b>CRITICAL POINTS</b>	<b>SUB POINTS</b>	<b>INSTRUCTIONAL TECHNIQUES</b>
7.0	<p><b>MARKETING</b></p> <p>7.1. Meaning of market and marketing</p> <p>7.2. Importance of Marketing</p> <p>7.3. Marketing functions</p> <p>7.4. Export and import of agricultural commodities</p>	<p>Market: Any place where goods and services are exchanged</p> <p>Marketing: It is a process of planning and executing the idea, pricing, promotion, advertising etc. of agricultural goods and services.</p> <ul style="list-style-type: none"> <li>• To avoid post harvest losses</li> <li>• Increase farm income etc.</li> </ul> <p>Functions: Assembling, preparation, sorting, grading and distribution, packaging etc.</p> <p>Export: Cocoa, timber, coffee citrus etc.</p> <p>Import: Poultry products, meat, apple etc.</p>	<p>Marketing is not just selling even though it is part of marketing.</p> <p>Marketing of agricultural good and services should be planned in advance.</p> <p>Marketing functions are a chain of activities which are related</p> <p>Other export crops: Pineapple, banana, citrus etc.</p>	<p>Facilitator takes trainees to market Site</p> <p>Facilitator plans marketing strategies with trainees</p> <p>Visit of facilitator with trainees to market centres</p> <p>Facilitator guides trainees to discuss export and import agricultural commodities</p>

**CERTIFICATE ONE – TRADE THEORY**

ITEM	TASK	CRITICAL POINTS	SUB POINTS	INSTRUCTIONAL TECHNIQUES
1.0	<b>AGRICULTURAL SURVEY</b>			
	1.1. Definition	Definition: E.g. A process by which measurement of land made on the farm.	Measurement and mapping out of a position, size and boundaries of area of farm land.	Facilitator guides trainees to develop the definition of agric survey
	1.2. Types	Aerial survey Land survey Mining survey Engineering survey Hygroscopic survey	Each type of survey should be explained to trainees	Facilitator to use survey equipment to discuss with trainees
	1.3. Land survey Types	<ul style="list-style-type: none"> <li>• Chain survey</li> <li>• Compass survey</li> </ul>	Importance of land survey: <ul style="list-style-type: none"> <li>• Help to determine acreage of land</li> <li>• Exposes the gradient of the land etc</li> </ul>	
	1.4. Equipment of Chain Survey	Ranging poles Survey chain Cross staff, arrows/pins etc.	Description of various equipment Measurement of smooth and sloping land in chaining must be treated.	Facilitator describe equipment with trainees
	1.5. Application of Simple Conversion	Measurement of sizes of plot, plant population, planting distance and planting area.	Area of land = L x B Plant population = <u>Area of land x No per hill</u> Planting distance	Facilitator to lead discussion on application of simple conversion and convectional signs with the trainees.
	1.6. Convectional Signs	Convectional signs and their meanings	Green colour on a map = Forest Brown = Highlands Blue = Water bodies Measuring areas etc.	

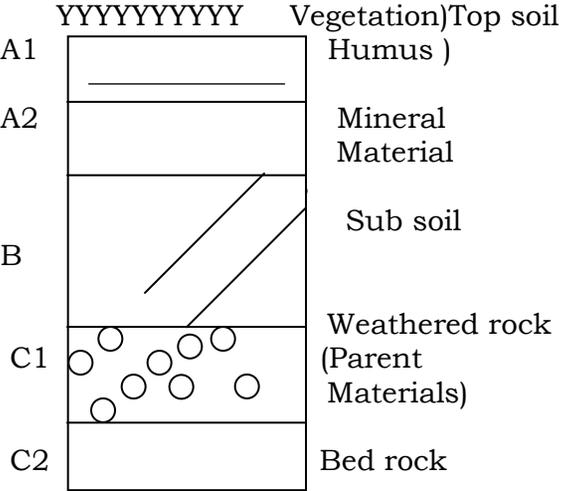
**CERTIFICATE ONE – TRADE THEORY**

<b>ITEM</b>	<b>TASK</b>	<b>CRITICAL POINTS</b>	<b>SUB POINTS</b>	<b>INSTRUCTIONAL TECHNIQUES</b>
1.0.	<p><b>CONCEPT OF SOIL</b></p> <p>1.1. Meaning of soil</p> <p>1.2. Importance of soil to the agriculturist</p> <p>1.3. Description of the soil</p> <p>1.4. Types of rock</p> <p>1.5. Weathering rocks</p> <p>Factors of rock weathering</p>	<p>i. Medium for plant growth</p> <p>ii. Loose unconsolidated mineral and organic materials</p> <p>i. Source of nutrients to crops</p> <p>ii. Support for plant growth</p> <p>iii. Supply water and air to plant etc.</p> <p>It is loose, unconsolidated minerals and organic materials</p> <ul style="list-style-type: none"> <li>• Igneous rock</li> <li>Sedimentary rock</li> <li>Metamorphic rock</li> </ul> <p>Weathering refers to the physical and chemical activities that affect rocks to disintegrate.</p> <p>Physical: Wind, climate, human activity</p> <p>Chemical: Solution, oxidation, carbonation, hydrolysis etc.</p>	<p>Soil supports plant growth. It is a home of a plant and animals.</p> <p>Habitat of micro and macro organisms</p> <p>It is a mixture of both organic and inorganic materials</p> <p>Characteristics of rocks</p> <p>Igneous rock: Hard, shining in appearance, no fossils. E.g. granite, diorite, gabbro etc.</p> <p>Sedimentary rock: Formed in layers Contains fossils Not hard E.g. sandstone, limestone</p> <p>Biological activity also affect rock weathering</p> <p>Biological factors Plants and animal influence</p>	<p>Facilitator leads the trainees to deduce the meaning of soil</p> <p>Facilitator assembles rock samples to the trainees</p> <p>Use of rock samples to discuss factors of rock weathering</p>

**CERTIFICATE ONE – TRADE THEORY**

<b>ITEM</b>	<b>TASK</b>	<b>CRITICAL POINTS</b>	<b>SUB POINTS</b>	<b>INSTRUCTIONAL TECHNIQUES</b>
1.0	<p><b>SOIL CLASSES AND THEIR PROPERTIES</b></p> <p>1.1. Classes of soil</p> <p>Characteristics of soil</p>	<p>Clay, sand, silt, loam, humus</p> <p>Clay: Sticky when wet Compact soil etc.</p> <p>Sand: Loose, high, aeration, high percolation etc.</p> <p>Silt: Intermediate between sand and clay</p> <p>Loam: Composition of sand silt and clay in equal or different ratio etc.</p>	<p>Soil is a composition of different particles</p> <p>Soil classes have different characteristics</p>	<p>Facilitator should use soil samples to discuss classes and properties with trainees.</p> <p>Discussion should emphasize on qualities which favour plant growth and those which do not.</p> <p>Discuss how bad characters can be corrected.</p>
2.0.	<p><b>SOIL PROFILE</b></p> <p>2.1. Meaning of soil profile</p> <p>2.2. Importance of soil profile to the agriculturist</p>	<p>It is the cross-section of soil from the top to the parent rock showing the various horizons or layers</p> <p>Importance: Shows the fertility status of soil Shows the type of implement or crops to use on the land etc.</p>	<p>The profile is made up of different horizons</p> <p>Profile of the soil shows its drainage ability</p>	<p>Facilitator should lead trainees to observe profile of soil.</p> <p>Discussion with trainees about the importance.</p>

**CERTIFICATE ONE – TRADE THEORY**

ITEM	TASK	CRITICAL POINTS	SUB POINTS	INSTRUCTIONAL TECHNIQUES
2.0	2.3. Diagram of a typical soil profile  2.4 Description of various layers	Diagram of soil profile.  Description of: <ul style="list-style-type: none"> <li>• Top soil</li> <li>• Sub soil</li> <li>• Weathered rock</li> <li>• Bed rock (unweathered rock)</li> </ul> What is area of i) Eluviation? ii) Illuviation?	 <p>                         YYYYYYYYYY Vegetation)Top soil                          A1 Humus )                          A2 Mineral                          Material                          B Sub soil                          C1 Weathered rock                          (Parent                          Materials)                          C2 Bed rock                     </p> <p>A typical soil profile</p>	Use a sketch to explain soil profile with trainees

**CERTIFICATE ONE – TRADE THEORY**

<b>ITEM</b>	<b>TASK</b>	<b>CRITICAL SKILLS</b>	<b>SUB SKILLS</b>	<b>INSTRUCTIONAL TECHNIQUES</b>
1.0.	<b>DEFINITION AND IMPORTANCE OF FARM MECHANISATION</b>			
	1.1. Definition	Farm mechanization is the application of engineering principles and technology to agricultural production.	Farm mechanization also include processing and storage on the farm	Facilitator visits mechanization workshop with trainees
	1.2. Importance	<ul style="list-style-type: none"> <li>• Timeliness of operation on the farm</li> <li>• Saves labour</li> <li>• Reduces health hazards etc.</li> </ul>	Mechanization of farm also include application of technology.	Facilitator to visit mechanization workshop to identify various implements
	1.3. Categories of farm implements	Categories: <ul style="list-style-type: none"> <li>• Land clearing</li> <li>• Primary tillage</li> <li>• Secondary tillage</li> <li>• Planters</li> <li>• Fertilizer distributors</li> <li>• Harvesters</li> <li>• Seed shelling</li> <li>• Processing</li> </ul>	Equipments: Cutlass Plough Harrow Planter Fertilizer distributors Combine harvester Shellers Oil mill	

**CERTIFICATE ONE – TRADE THEORY**

<b>ITEM</b>	<b>TASK</b>	<b>CRITICAL SKILLS</b>	<b>SUB SKILLS</b>	<b>INSTRUCTIONAL TECHNIQUES</b>
1.0	<p><b>MAINTENANCE OF FARM TOOLS/EQUIPMENT</b></p> <p>1.1. Farm tools</p> <p>1.2. Maintenance of tools</p>	<ul style="list-style-type: none"> <li>• Digging fork</li> <li>• Pickaxe</li> <li>• Shovel/spade</li> <li>• Cutlass, sicle</li> <li>• Watering can</li>   <li>• Cleaning after use</li> <li>• Keeping tools at the appropriate place</li> <li>• Oil metal parts</li> <li>• Tighten bolt and nuts etc.</li> </ul>	Tools should be used with care to ensure their long life span	Facilitator to discuss maintenance of tools with trainees with available tools and pictures

**CERTIFICATE ONE – TRADE PRACTICAL**

<b>ITEM</b>	<b>TASK</b>	<b>CRITICAL SKILLS</b>	<b>SUB SKILLS</b>	<b>INSTRUCTIONAL TECHNIQUES</b>
1.0	<p><b>DETERMINATION OF SOIL TEXTURE</b></p> <p>1.1. Feel method (Field methods)</p> <p>1.2. Procedure</p> <p>1.3. Observation</p> <p>1.4. Conclusion</p>	<p>Apparatus:</p> <ul style="list-style-type: none"> <li>• Sample soil</li> <li>• Sand silt clay</li> <li>• Water</li> <li>• Wooden board</li> </ul> <p>i. Add few drops of water to each soil sample. One after the other, until a sticky point is reached.</p> <p>ii. Mould each soil sample into ball, ribbon, u-shape, circle</p> <p>Sand – cannot form any shape Silt – can form only ball shape Clay – can form all shapes – ball, ribbon, circle etc.</p> <p>i. Sand is loose soil ii. Silt is intermediate between sand and clay iii. Clay is plastic or sticky when wet</p>	<p>Sand ..... Loose texture (structure less)</p> <p>Silt Intermediate in structure between sand and clay</p> <p>Clay Plastic, fine particles</p>	<p>Facilitator to use soil samples (sand, silt clay) to demonstrate the texture of the soil with trainees</p>

**CERTIFICATE ONE – TRADE SCIENCE AND CALCULATIONS**

<b>ITEM</b>	<b>TASK</b>	<b>CRITICAL SKILLS</b>	<b>SUB SKILLS</b>	<b>INSTRUCTIONAL TECHNIQUES</b>
2.0	SIMPLE CONVERSION			Facilitator leads the trainees to learn simple mathematical conversion with their corresponding values (metric system)
	2.1 Acre	2½ acres =	1 Hector	
	Mileage	1mile =	1.6Km	
	Feet	1 Ft =	30Cm	
	Square metre	10,000m <sup>2</sup> =	1 Hector	
		80m x 50m	1 acre (400m <sup>2</sup> )	

**LEVEL – CERTIFICATE ONE – TEST SPECIFICATION TABLE  
TRADE THEORY (OBJECTIVE)**

<b>NO</b>	<b>TOPIC</b>	<b>COGNITIVE KNOWLEDGE</b>	<b>AFFECTIVE UNDERSTANDING</b>	<b>PSYCHOMOTOR APPLICATION</b>	<b>TOTAL</b>
1.	Animal Nutrition: Meaning of Animal Nutrition	1	2	2	5
2.	Categories of Feed	2	1	2	5
3.	Feed Formulation	1	2	2	5
4.	Purpose of Feeding	2	3	0	5
5.	Cost Analysis of Feed	1	2	2	5
					25

