

Answers to Practical Questions

Sample Paper 1

PRACTICAL PAPER 332/2 (30 marks)

1. (a) Specimen L: is a tick (freshly collected).
Specimen M: is a roundworm (preserved).
- (b) L: (i) Transmits (is a vector of) diseases to livestock.
(ii) Causes anaemia by sucking blood.
(iii) Damages hides and skins as a result of bites.
(iv) Causes irritation and discomfort to host animals.
M: (i) Robs the host animal of nutrients as it attaches itself to the intestinal walls.
(ii) Sucks blood and leads to anaemic conditions.
(iii) Young worms (juveniles) cause damage to internal organs as they migrate about in the body.
(iv) Its excrements may be toxic and cause digestive upsets.
(v) Heavy infestation may block the digestive tract of the host.
- (c) L: (i) Treat affected animals with acaricide (dipping and spraying).
(ii) Hand-dressing with py-grease.
(iii) Fencing to keep out intruders which may spread the tick.
(iv) Rotational grazing to disrupt the life-cycle.
(v) Burning pastures during dry season to kill the young ticks or to destroy the eggs.
(vi) Hand picking and destroying.
M: (i) Rotational grazing.
(ii) Drenching affected animals with the correct drugs (prophylactic).
(iii) General sanitation e.g. in animal houses, feeding equipment, etc.
(iv) Isolation of suspects e.g. newly introduced animals to the farm.
- (d) *Specimen:*
N Barbed wire
O Chicken wire
P Chain-link wire (woven wire).
Animals enclosed:
Cattle and other bigger animals
All classes of birds or poultry-chickens, turkeys, geese etc.
Pigs, Rabbits, sheep, goats, etc.
- (e) Specimen Q is a handful of fencing staples for fixing wire to posts.

2. (a)

Observation	J	K
Origin	Goat	Cow
Description	Dried or cured	Dried or cured
Identity of specimen	A piece of goat skin	A piece of cow's hide
- (b) (i) Do not make any cuts or perforations on the specimens.
(ii) Avoid contact with soil or any dirt e.g. manure.
(iii) Avoid any injury to the animal just before slaughter.
(iv) Drain the blood completely from the carcass before flaying.
(v) Ensure that the carcass is hoisted during flaying to avoid contact with any contaminants.
(vi) Avoid overflaying as this lowers the quality of the specimen.
- (c) (i) Washing with lots of water.
(ii) Draining to remove excess water used during washing.
(iii) Fleshing - remove pieces of meat adhering to the skin or hide.
(iv) Trimming - removal of all odd flaps at the edges.
(v) Preservation - by either wet or dry salting.
(vi) Brining - washing or soaking in brine to remove any traces of blood in the blood vessels.
(vii) Drying on hoisted frames.
- (d) (i) Avoid indiscriminate branding i.e. brand only on the inferior parts of the skin/ hide e.g. humps, hocks, cheeks, etc.
(ii) Avoid physical injuries to animals e.g. whips, barbed wires and other sharp objects.
(iii) Control external parasites e.g. ticks, mites, keds and control skin diseases e.g. ringworms.
(iv) Use well-made harnesses for draft animals e.g. oxen to avoid bruising them on the necks and shoulders.
(v) Dehorn animals to prevent them from inflicting injuries to each other through goring.
3. Specimen A is coffee berries which have been attacked by C.B.D.
- (a) Coffee berry disease.
- (b) Small, dark sunken patches on green berries and dark sunken patches with black spots.
- (c) (i) Pruning.
(ii) Growing resistant varieties.
(iii) Use of fungicides.
- (d) K7, Blue mountain and Ruiru II.
- (e) A₂ - Scion.
A₃ - Stock.
- (f) Oranges and mangoes.

Sample Paper 2

PRACTICAL PAPER 332/2 (30 marks)

1. (a)	Specimen	Observation after adding 5 mls. of distilled water	Observation after further 5 mls. of distilled water	pH Value
	A ₁	Mixes with water readily and easily	Water becomes clear as A settles to the bottom of test tube.	4.0 to 5.5
	A ₂	Resists water infiltration. Doesn't mix with it readily.	Becomes compacted and sticky.	6.0 to 8.5

- (b) Specimen: A₁ is sandy soil.
Specimen: A₂ is clay soil.
- (c) Specimen A₁ is coarse-textured while specimen A₂ is fine - textured.
- (d) Leaching due to low water - holding capacity is responsible for the pH value of A₁.
- (e) (i) Phosphorus.
(ii) Calcium.
- (f) Horticultural crops e.g. pineapples.
- (g) (i) Application of agricultural lime.
(ii) Addition of organic matter (manures).
2. (a) L₁: is a tractor battery.
L₂: is a dry (torch) cell or battery.
- (b) Sulphuric acid and distilled water.
- (c) Supplies electric (energy) current used in the operation of farm machines.
- (d) (i) Low level of electrolyte.
(ii) Uncleaned connection terminals.
(iii) Weak electrolyte.
- (e) (i) Portable torches.
(ii) Transistor radios.
(iii) Calculators.
3. (a) False codling moth.
- (b) (i) Destruction of the affected materials.
(ii) Spraying insecticides on the fruits.
- (c) Specimen B - leaves of an orange attacked by greening disease.
(i) Greening disease.
(ii) • Control of vectors (citrus psyllids).
• Use of clean planting materials.
• Use resistant rootstock.
(iii) Areas over 1500 metres above sea level.
- (d) (i) Sugarcane stem.
(ii) • Molasses.
• Bagasse.

- Filter mud.
 - White sugar.
- (iii) • Hot water treatment of setts against ratoon-stunting disease.
- Setts are dipped in mercurial solution to control fungal diseases.
 - Spray dieldrin on setts to control termites.

Sample Paper 3

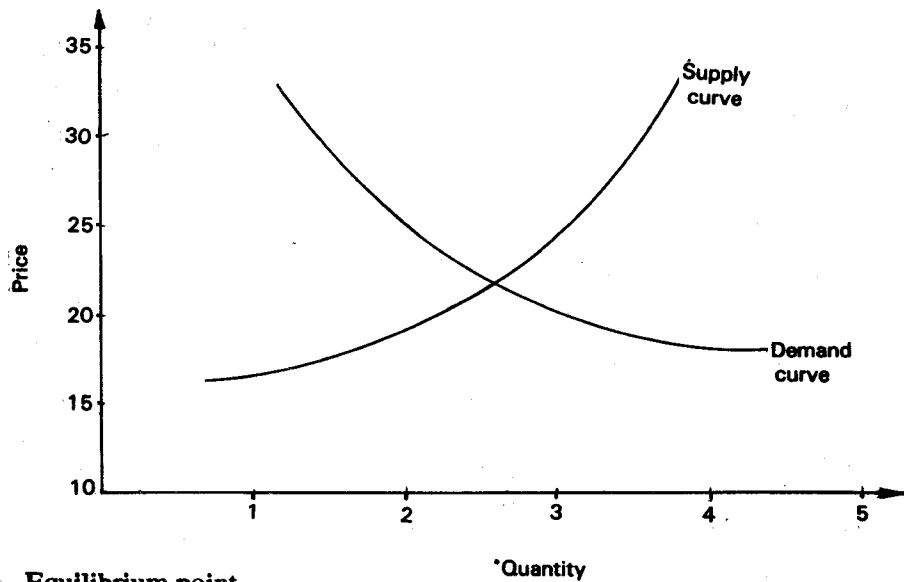
PRACTICAL PAPER 332/2 (30 marks)

1. (a)

Photograph	Identity
B	Friesian Cow
C	Jersey Cow
D	Hereford Steer
E	Sahiwal Cow

- (b)
- | | |
|---|--|
| <p>B</p> <p>(i) Has an angular or wedged-shaped body conformation.</p> <p>(ii) Relatively long legs which are well set apart.</p> <p>(iii) Long thin neck without much flesh on the shoulders.</p> | <p>D</p> <p>(i) Has a square or blocky conformation.</p> <p>(ii) Relatively short and compact legs.</p> <p>(iii) Short thick and well-fleshed neck and shoulders.</p> |
|---|--|

2. (a) Quantity of demand and supply



- (b) Equilibrium point.

- (c) (i) Price of eggs per tray at this point of intersection is KShs.22.50.
 (ii) 3.30 trays of eggs.
- (d) (i) The number of consumers remained constant.
 (ii) The consumers' taste for eggs did not change much.
 (iii) There were no substitutes for eggs.
- (e) KShs: 23.50.

3. (a)

<i>Specimen</i>	<i>Identity</i>	<i>Problems in the farm</i>
D ₁	Thorn apple	It is a poisonous weed.
D ₂	Couch grass	Difficult and expensive to eradicate.
D ₃	Mexican marigold	Taints milk and other farm products.
D ₄	Black jack	Sticks to the wool in sheep thus lowering its quality.

- (b) (i) Specimen E: Coffee leaf attacked by coffee leaf rust.
 (ii) • Growing resistant varieties.
 • Open pruning.
 • Spraying fungicides.

(c)

<i>Specimen</i>	<i>Identity</i>	<i>Method of propagation</i>	<i>Use</i>
F ₁	Pyrethrum flowers	Seeds/splits	Making insecticides and livestock feed.
F ₂	Pineapple stem	Slips, suckers grown	Juices, distillation of alcohol and livestock feed.
F ₃	Passion	Seeds	Juice, salads and livestock feed.
F ₄	Sisal leaves	Suckers, seeds, bulbils and rhizomes	Fibres used for making ropes etc. livestock feed, firewood and construction of houses especially the boles and poles.

Sample Paper 4

PRACTICAL PAPER 332/2 (30 marks)

1. Specimen B is a live tick.
 Specimen C is an acaricide.

- (a) Specimen B died soon after it was removed from the solution.
 - (b) The use of acaricidal liquid to control ticks on farms.
 - (c) (i) East coast fever.
(ii) Anaplasmosis.
(iii) Red water.
(iv) Heart water.
(v) Nairobi sheep disease.
 - (d) Acaricide.
 - (e) Specimen B is a tick.
 - (f) (i) Rotating pastures (grazing) with cultivation.
(ii) Burning the pastures during dry spells to destroy eggs and larval stages of the ticks.
(iii) Proper fencing to shut out intruders (animals from other farms or wild game) and reduce the spread of ticks.
(iv) Hand-picking and killing the ticks.
 - (g) Mites.
2. Specimen D is a freshly cut napier grass stem.
- (a) Specimens D and E are succulent napier grass cane and groundnut, respectively.
 - (i) Cane fibre of napier grass.
 - (ii) As a fodder crop/feeding livestock.
 - (iii) Ruminants.
 - (iv) Specimen D is a roughage or fibrous feed which can only be digested by ruminants. Such farm animals have micro-organisms in their rumens which break and digest the cellulose part of the roughage. This is not possible in simple-stomached or non-ruminant animals.
 - (b) Specimen E is shelled groundnut.
 - (i) The area becomes translucent or appears cloudy.
 - (ii) Specimen E contains oil or oily substance.
 - (iii) • Extracted oil.
• Groundnut cake used for feeding livestock.
 - (iv) It is a rich source of proteins and vitamins.
3. (a) M_1 - Pyrethrum splits with swollen roots.
 M_2 - Orange leaves attacked by citrus psyllids.
- (b) (i) Root knot nematodes.
 - (ii) • Crop rotation.
• Soil fumigation.
 - (iii) Citrus psyllids.
 - (iv) Spraying insecticides.
 - (v) Greening disease.

Sample Paper 5

PRACTICAL PAPER 332/2 (30 marks)

1. (a) A - Thorn Apple.
B - Black jack.

- C - Oxalis.
- D - Tick berry/Lantana.
- E - Macdonald weed/gallant soldier.
- (b) (i) Compete with crops for nutrients, moisture, light and space and hence lower crop yields.
- (ii) They limit formation and distribution of crop roots.
- (iii) Lower the quality of crop produce through contamination.
- (iv) Harbour pests and disease agents of economic importance to crops.
- (v) They choke and smother crops through shading.
- (vi) They increase costs of production through extra expences incurred in cleaning contaminated crops and controlling them.
- (vii) Some are poisonous to livestock on the farm.
- (c) (i) Crop rotation.
- (ii) Use of clean planting materials i.e. free from contamination.
- (iii) Rogueing or hand-pulling.
- (iv) Proper crop establishment through adequate use of fertilisers.
- (v) Burning field after crop harvesting.
- (vi) Flooding with irrigation water in rice fields to choke and kill the weeds.

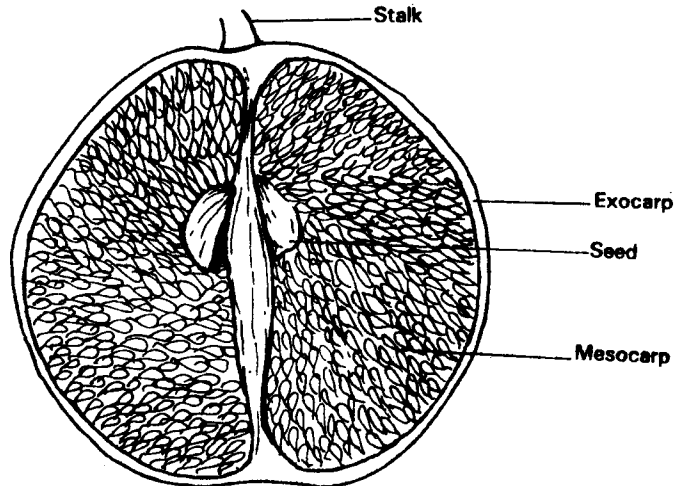
2.

Etyet Farm Profit and Loss Account as at 31st Dec. 1990

<i>Purchases and Expenses</i>	<i>KShs.</i>	<i>Sales and Receipts</i>	<i>KShs.</i>
Opening valuations	14,000	Sales of poultry	500
Purchase of feed	250	Sales of grains	1,200
Purchase of seeds	280	Sales of vegetable	50
Purchase of fertilisers	200	Sales of milk	600
Rent	200	Closing valuations	15,000
Hire of labour	250		
Depreciation of machines	50		
Interest on loan	40		
Purchase of chicks	80		
Purchase of calves	100		
General expenses	100		
TOTAL	15,550	TOTAL	17,350
B/F (Profit)	1,800	B/F (Loss)	---
Balancing Total	17,350	Balancing Total	17,350

- (b) (i) The farm made a profit in 1990.
- (ii) Kshs. 1,800.
- 3. (a) N₁ - Pawpaws.
- N₂ - Passion fruit.
- N₃ - Pineapples.
- N₄ - Mangoes.
- (b) N₁ - Jams, pawpaw juice, alcohol (wine), papain.
- N₂ - Jams, livestock feeds, confectionery cakes.
- N₃ - Juices, jams, squashes, alcohol, citric acid, ascorbic acid and livestock feeds.
- N₄ - Vitamins, juices, baby foods, jam, leather tanning and livestock feeds.
- (c) They are all fruits.

(d) Q - Orange fruit.



(e) Juices, marmalade, vitamin C and livestock feeds.

Sample Paper 6

PRACTICAL PAPER 332/2 (30 marks)

1. (a) *Specimen* *Identity*
 E - Dry sunflower seeds.
 F - Maize stalk.
 G - Bean seedlings.
 H - Tomato fruits.
- (b) *Specimen:* *Products obtained:*
 E: (i) Cooking oil.
 (ii) Sunflower cake used as livestock feed.
- (c) Conditions of specimens F, G and H.

<i>Specimen</i>	<i>Possible pest attack</i>	<i>Control measures</i>
F	Maize Stalk-borer	(i) Early planting. (ii) Burn crop residues after harvesting. (iii) Use insecticides e.g. Malathion, Endosulfan, Diazinon.
G	Bean fly	(i) Seed-dressing with Aldrin. (ii) Crop-rotation. (iii) Spray seedlings with Diazinon.
H	American bollworm	Spray with insecticides e.g. (i) Endosulfan or (ii) Malathion.

2. (a) (i) Specimen S is a drenching gun.
Use: Administer liquid drugs orally to farm animals.
- (ii) Specimen T is a cattle-halter.
Use: Handling/leading/restraining farm, animals, e.g. during treatment or training.
- (b) (i) Specimen U is a milk-filter pad used for filtering or sieving milk to reduce the amount of dirt or contamination in milk.
- (ii) Specimen V is a dairy washing detergent. It is used for washing dairy equipment after use.

(c)

<i>Specimen</i>	<i>Identity</i>	<i>Uses</i>
W	Pruning shears	(i) Pruning in coffee, citrus, etc. (ii) Trimming hedges.
X	Greasing gun	Application of grease to machines through the nipples.
Y	Knapsack sprayer	Application of the chemical sprays e.g. pesticides.
Z	A sickle	(i) Cutting grass (ii) Harvesting cereals e.g. wheat, sorghum, etc.

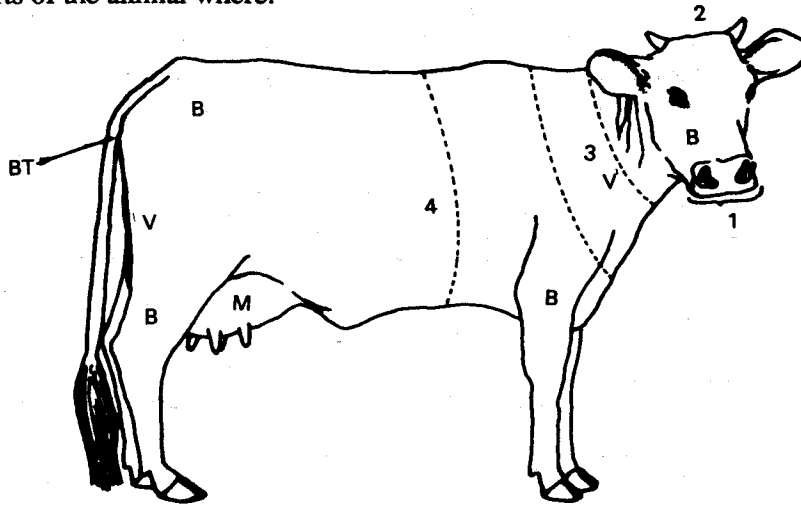
3. (a)

<i>Specimen</i>	<i>Identity</i>	<i>Method of propagation</i>	<i>Agricultural importance</i>
S ₁	Cotton seeds	Seeds	Textile, stuffing mattresses, cooking oil and livestock feed.
S ₂	Coffee berries	Seeds	Beverage, mulching, source of fuel, livestock feed.
S ₃	Sugar cane stems	Stem cuttings (setts)	Sugar, molasses used as livestock feed, mulching, source of fuel, organic manures.
S ₄	Lemon fruit	Seed/budling	Dessert, pulp used as livestock feed. Extraction of citric acid and squash. Also used to flavour other foodstuff.

Sample Paper 7

PRACTICAL PAPER 332/2 (30 marks)

1. (a) Parts of the animal where:



- (i) (B) should take place -Hocks, cheek and rump.
 (ii) (V) is done - Thigh muscles and the shoulders.
 (iii) (BT) is taken - Anus.
 (iv) (M) may occur - udder and teats.
- (b) (i) Ears (ear lobes).
 (ii) Tail switch.
 (iii) Under the tail head.
 (iv) Both fore and head flanks.
 (v) Between the hooves.
- (c) 1 - Muzzle.
 2 - Poll.
 3 - Shoulder.
 4 - Heart girth.
2. (a) W_1 - Processed tea leaves.
 W_2 - Sugar.
- (b) W_2 (i) Crushing to extract the juices from the canes.
 (ii) Purification of the juice.
 (iii) Thickening of the juices.
 (iv) Separating the sugar crystals from the syrup.
 (v) Packing ready for sale.
- or
- W_1 (i) Withering.
 (ii) Crushing to release juices and Enzymes.
 (iii) Fermentation.
 (iv) Drying.
 (v) Sorting and packing.

- (c) Tea - Stem cuttings and seeds.
Sugar - stem cuttings or setts.
- (d) *Sugar cane diseases:* *Tea diseases:*
 (i) Ratoon stunting (i) Armillaria root rot
 (ii) Smut (ii) Hypoxylon serpens
 (iii) Sugar cane mosaic (iii) Pink disease
 (iv) Stem/branch canker.
3. (a) X_1 is tobacco leaves.
 X_2 is sisal leaves.
- (b) *Tobacco leaves:* *Sisal leaves:*
 (i) Cigarettes and cigars (i) Sack/mats/carpets
 (ii) Cooking oil (ii) Ropes/twines.
 (iii) Vitamin B Complex (iii) Livestock feeds
 (iv) Firewood.
- (c) *Sisal* *Tobacco*
 (i) Leaves (i) Leaves
 (ii) Poles (ii) Seeds
 (iii) Boles

Sample Paper 8

PRACTICAL PAPER 332/2 (30 marks)

1. (a)

<i>Specimens</i>	<i>Identity</i>	<i>Product obtained</i>
A	Piece of sugar-cane	Sugar, bagasses and molasses.
B	Coconut shell	Coconut "water" (milk) and oil extraction.
C	Cotton seeds	Cotton lint, cooking oil and seed cake (feed).
D	Pyrethrum flowers	Pyrethrins and pyrethrum marc as livestock feed.
E	Fresh sisal leaf	Sisal fibre used for a variety of products.

- (b) *Specimens:* *Propagation method:*
 A Vegetative propagation by use of stem-cuttings.
 B Use of seeds
 C Use of seeds.
 D Use of splits.
 E Suckers or bulbils.
- (c) (i) Specimen F_1 is a sample of unpulped coffee berries showing signs of disease attack.
 (ii) Specimen F_2 is a handful of parchment coffee beans.

- (d) Coffee berry disease.
 (e) (i) Open pruning to discourage the fungus and facilitate effective spraying.
 (ii) Use of fungicide -captafol.
 (iii) Plant resistant varieties.
2. (a) Tendwet Farm
 Profit and Loss Account
 As at 31st Dec. 1989.

Particulars	Kshs.	Particulars	Kshs.
Opening valuations	19,000	Sales and Receipts	1,620
Purchase & Expenses:		Cull cows & heifers	1,532
Dairy cattle	430	Sales of heifers	900
Beef cattle	435	Milk sales	3,640
Rent	1,000	Closing valuations	18,750
Wages and Salaries	2,400		
Purchase of new machines	500		
Other expenses	1,000		
Total	24,765	Total	26,442
B/F (Profit)	1,677	B/F (Loss)	
Balancing Total	26,442	Balancing Total	26,442

- (b) There was a profit made in the year.
 (c) Kshs: 1,677.
3. (a)

<i>Specimen</i>	<i>Identity</i>	<i>Economic importance</i>
G ₁	<i>Desmodium spp</i>	-Livestock feed
G ₂	<i>Cyanthula spp.</i>	-Weed in arable land, sticks to the sheep's wool. Irritates the workers.
G ₃	Nut grass	Weed in arable land and pasture land.
G ₄	Lucerne	Livestock feed.
G ₅	Amaranths spp.	Human vegetable and weed in arable land.
- (b) Because it has underground food storage structures.
 (c) Sticks to the sheep's wool hence lowers the quality since it is difficult to remove.

Sample Paper 9

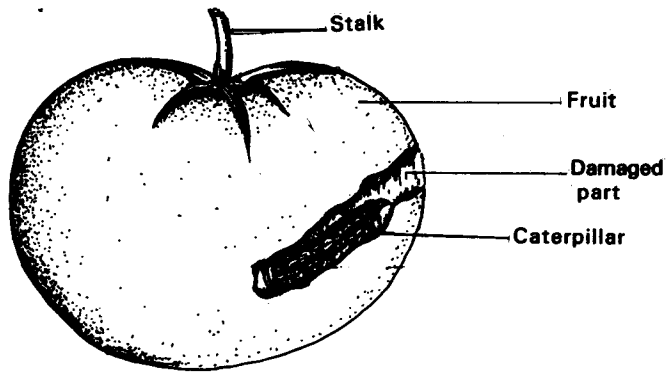
PRACTICAL PAPER 332/2 (30 marks)

1. (a) (i) Specimen G is double superphosphate fertiliser.
 (ii) The specimen does not dissolve immediately or instantly when water is added to it.
 (b) It is slowly soluble and hence slowly available as nutrient to the crop.

(c) Specimen	Identity	Use on farm
H	A burdizzo	Castration of male farm animal.
I	Strip cup	Detection of mastitis infection in milk animals.
J	Elastrator and rubber ring	Application of castration rings to small animals.
L	Milking jelly	Applied to teats to soften and prevent them from cracking.

- (d) (i) Milk.
(ii) Cream, butter, cheese, ghee, yoghurt, condensed milk, dried or powdered milk.
- (e) (i) Specimen N is dairy meal.
Specimen O is napier grass.
Specimen P is desmodium.
(ii) Specimen N is a concentrate feed while specimens O and P are roughages (or roughage feeds).
2. (a) Specimen E is a sheep roundworm (*Haemonchus contortus*).
Control:
(i) Drenching affected animals with the correct antihelminthic drugs.
(ii) Rotational grazing.
- (b) (i) Specimen F₁ is loam soil.
Specimen F₂ is sandy soil.
(ii) Specimen F₁ is likely to be more fertile and suitable for optimum crop production.
(iii) Specimen F₂ is likely to require the addition of organic matter (manures) to improve its structure.
- (c) A is garden trowel:
• Loosening soil in the nursery bed.
• Digging small, shallow holes for planting seeds or seedlings.
• Scooping out seedlings from the nurseries during transplanting.
B is cold chisel:
• Cutting and shaping metal parts or pieces or blocks to desired form.
• Cutting wires to desired sizes.
• Removing or dislodging rivets by tinsmitts.
C is vet thermometer:
• Used to detect or determine the body temperature in farm animals.
D is spokeshave:
• Used by carpenters to smoothen the sides or surfaces of cylindrical wood-pieces e.g jembe or axe-handles.
- (d) (i) Specimen X is a cotton stainer bug.
(ii) **Control measures:**
• Use of trap crops.
• Use of chicken.
• Killing with insecticides.
3. (a) Specimen is a tomato fruit which has been attacked by American bollworm.

(b)



- (c) American bollworm.
 (d) Spraying insecticides.

Sample Paper 10

PRACTICAL PAPER 332/2 (30 marks)

1. (a) A - Irish potato tuber.
 B - Pineapple fruit.
 C - Passion fruit.
 (b) (i) H_1 is maize weevil.
 (ii) H_2 is Antesia bug.

Specimen	Crop attacked	Nature of damage
H_1	Maize grains	Feeds on and destroys the inner parts of the grains by boring into them.
H_2	Coffee	(i) Sucks sap from flower buds and young berries, causing them to blacken and die.
		(ii) Introduces a fungus that causes rotting and zebra stripes on developing berries.

- (d) H_2 : Open pruning to discourage and destroy breeding places of the bugs.
 H_1 : (i) Thorough cleaning of stores before the crop is stored.
 (ii) Ensure that the fields are at a good distance from the stores to discourage the pest from moving either way.
 (iii) Storage of crops in air-tight bins.
 (e) (i) Specimen F is calcium ammonium nitrate fertiliser.
 (ii) Specimen G is double superphosphate fertiliser.

- (f) F - Nitrogen and calcium.
G - Phosphorus.
- (g) F - After crop establishment as a top-dressing fertiliser.
G - At planting time.
2. (a) J - Spider flower.
K - Star grass.
- (b) J - propagated by means of seeds.
K - propagated by cuttings of runners.
- (c) (i) Cultivation and slashing.
(ii) Uprooting/rogueing.
(iii) Mulching.
(iv) Cover cropping.
(v) Crop rotation.
(vi) Use of clean planting materials.
(vii) By grazing animals to exterminate the weeds.
(viii) Use of herbicides.
- (d) M - 'Nilverm' drench or dewormer:
Used to drench or dose farm animals against internal worm parasites e.g. round worms.
- P - Mineral (salt lick) supplement:
A source of essential minerals in livestock nutrition. Promotes growth and prevents mineral deficiency in livestock.
- (e) Uses of any three following equipment:
- (i) Specimen R: (Rasp).
Smoothing and/or shaping wood surfaces in wood-work.
- (ii) Specimen S: (sprinkler).
Application of irrigation water (overhead) with even distribution.
- (iii) Specimen T: (soil auger).
Scooping soil samples for testing and digging holes for fencing post.
- (iv) Specimen U: (greasing gun).
Application of grease to machinery parts by pumping it through the nipples.
3. (a) D is a modern maize storage structure.
E is a traditional maize storage structure.
- (b) (i) Rat guards on D absent in E.
(ii) D is well ventilated while E is not.
(iii) D is durable and waterproof while
E is less durable and can leak.
(iv) Root of E is a good breeding place for rats than that of D.
- (c) (i) Clear the bush around the structures.
(ii) Check for any leaking roofs and rectify.
(iii) Clean the store after the maize is finished.
(iv) Disinfect before putting in new harvest.

Sample Paper 11

PRACTICAL PAPER 332/2 (30 marks)

1. (a) Identification of specimens:
 A - Clean, fresh milk with 3-4 pieces of hair floating on it.
 B - Clean fresh milk without any contamination at all.
 C - Sour and mouldy milk.

Specimens	A	B	C
Fit for human consumption		✓	
Unfit for human consumption.	✓		✓

- (c) (i) Specimen A is contaminated with pieces of hair and other dirt and therefore unfit for consumption.
 (ii) Specimen C is coagulated and mouldy due to poor preservation conditions and is likewise unfit for consumption.
- (d) (i) D - is an adult tick.
 E - is a preserved tapeworm.
 F - is a fresh-water snail.
 (ii) D - Harmful in that it sucks blood from, and transmits diseases of economic importance to farm livestock.
 E - Bladderworm stage of this specimen contaminates and makes carcasses of intermediate hosts unfit for consumption.
 F - It is the intermediate host of the liverfluke (*Fasciola hepatica*) which causes liver disease in cattle, sheep, goats, etc.

Specimen	Identity	Part of the plant	Type of crop
G	Sorghum	Seeds or grains	Cereal crop
H	Groundnuts	Nuts or seeds	Legume
I	Lemon	Fruit	Horticultural/fruit
J	Cabbage	Cabbage head or drum head	Vegetable crop
K	Coffee	Beans or seeds	Beverage

- (b) (i) Specimen L: is whole plant of setaria grass.
 (ii) Specimen M: is a bunch of desmodium.
- (c) They are both forage crops (roughages) used for feeding livestock.
3. (a) W_1 - Handfork or garden fork.
 W_2 - Dibber.
- (b) W_1 is used for weeding in the nursery bed.
 W_2 is used when planting the seeds i.e. making planting holes for seeds.
- (c) (i) Clean to remove the soil from them after use.
 (ii) Oil W_1 after use.
 (iii) Keep them under a rain-proof structure.
 (iv) Replace any worn out parts.
- (d) (i) Specimen L is coffee leaf which has been attacked by coffee leaf miner.
 (ii) Coffee leaf miner.
 (iii) • Spraying chemicals,
 • Open pruning

- Use of natural predators.
- (iv) Pierces the epidermis of the leaf and feeds on it forming communal mines characterised by brown blotches on the upper side of the leaf.

Sample Paper12

PRACTICAL PAPER 332/2 (30 marks)

1. (a) (i) A is single superphosphate.
 (ii) B is sulphate of ammonia.
 (iii) C is Diammonium phosphate.
 (iv) D is calcium ammonium nitrate.
- (b) (i) Specimen A does not readily dissolve when water is added to it.
 (ii) Specimen B quickly dissolves on addition of water.
- (c) The blue litmus paper dipped into specimen A did not change colour. It remained blue.
 Blue litmus paper dipped into specimen B changes from blue to deep pink or reddish.
- (d) The changes in colour indicates that specimen A is non-acid while specimen B is acidic.
- (e) Specimen B

2. (a)

<i>Specimen</i>	<i>Identification</i>	<i>Main use</i>
E	Hypodermic Syringe	Administration of drugs by injection through the skin.

- (b) (i) Overgrown hooves which are likely to break and lead to injuries.
 (ii) Physical injuries to animals' feet caused by sharp objects.
 (iii) Wet and muddy conditions in the areas where animals are grazing or staying overnight.
 - (c) (i) At the start of each milking session, draw 2-3 streams of milk from each teat at a time; into the cup.
 (ii) Slowly turn it round so that most of milk runs into the inner part of the cup through the slit.
 (iii) Observe the surface of the black or blue rubber or plastic screen in the cup, carefully.
 (iv) If there are clots, blood stains or spots, flakes, pus, etc, then the animal must be having mastitis.
3. (a) (i) N - Molasses.
 O - Sweet potato vines.
 P - Lucerne.
 (ii) Sugar cane processing.
 (iii) • Do not feed too much to the animals since it can cause bloat.
 • Feed livestock with dry matter before giving Lucerne.
 (iv) Cut and fed to livestock.

- (v) P is rich in protein while O is rich in carbohydrates.
 (b) Q is the blue tick. Stages of life cycle are egg, larva, nymph and adult.
 (c) Dip, spray race or cattle crush.

Sample Paper 13

PRACTICAL PAPER 332/2 (30 marks)

1. (a)

Specimen	Identity	Use
J	Fencing pliers/ hammer	To hammer in and remove staples during fencing. Also cuts wires to required sizes.
K	Brace and bit	Boring or drilling holes in wood-work. Bits are of various sizes.
L	Garden trowel	Transplanting seedlings from the nursery.
M	Hacksaw	Cutting pieces of metals to required sizes.
N	Hand-sprayer nozzle	Breaks spray liquid into very fine droplets for even distribution.
O	Milk strainer	Used with filter pads to trap dirt, hair, etc, in milk. It is a sieving equipment for milk.

- (b) (i) Remove the solid particles e.g. stones and grass.
 (ii) Clean it with water after use.
 (iii) Keep it under a dry place.
- (c) Specimen S (poultry oyster shells) helps in the digestion of food in the gizzard of birds and in the supply of calcium and phosphorus for strong egg-shell formation.
2. (a) A - Wandering jew.
 B - Pig weed.
 C - Mexican marigold.
 D - Nut grass.
- (b) (i) Compete with crops for nutrients, moisture, space, light, etc lower hence yields.
 (ii) Lower farm produce through contamination and adulteration.
 (iii) Some are poisonous to livestock and farmers.
 (iv) Increase costs of production through extra expenses and labour to control them.
 (v) Lower pasture herbage quality.
 (vi) Most are alternate hosts to pests of economic importance to crops.
 (vii) Are aggressive in growth and may limit growth of roots of crops.
- (c) (i) Specimens (agricultural lime) is used to modify soil acidity and improve soil structure.
3. (a) R - Liverfluke (*Fasciola spp.*).
 S - Tapeworm (*Taenia spp.*).
 (b) Cattle and sheep.

- (c) Fresh water snail.
- (d) Cattle, sheep, goats and pigs.
- (e)
 - Livestock should not graze near large bodies of water e.g lakes, dams, and rivers.
 - Draining swampy areas.
 - Eradicate intermediate hosts by spraying molluscicides e.g. copper sulphate in water or hand-picking them.
 - Drinking water should be provided in elevated troughs and cattle should be prevented from contaminating water source with urine or dung.
 - Drenching animals by use of antihelminthics e.g. Nilzan.
- (f)
 - Beef and pork should be thoroughly cooked before eating.
 - Meat inspection should be done before eating.
 - Use of latrines by human beings.
 - Use of drugs e.g. Yormesan and mansonil.

Sample Paper 14

PRACTICAL PAPER 332/2 (30 marks)

1. (a) (i) Specimen U: (tobacco):
Bungoma, South Nyanza, Murang'a, Sagana, Embu and Mitunguu and Giaki in Meru.
- (ii) Specimen V: (cotton):
South Nyanza, Murang'a, Siaya, Bungoma, Kirinyaga, Busia, Meru, Kisumu, Tana River, Machakos and Kitui.
- (iii) Specimen W: (sisal):
Taita Taveta, Kilifi, Kiambu, Murang'a, Nakuru and Baringo.
- (iv) Specimen Y: (pineapple):
Thika in Kiambu on commercial scale.
- (b)
 - Specimen U: Seeds.
 - Specimen V: Seeds .
 - Specimen W: Suckers and bulbils.
 - Specimen Y: Suckers and slips.

Value of potatoes (KShs.)	Cost of fertiliser (KShs.)	Profit (KShs.)	Additional revenue per additional cost (KShs.)
80	0	80	
400	100	300	320
900	200	700	500
1600	300	1300	700
2160	400	1760	560
2300	500	1800	140
2200	600	1600	100

- (i) The point of fertiliser application which brings the highest net revenue is the 5th unit when the additional revenue per additional cost is KShs. 140 and the profit is KShs.1800.

- (ii) At this point the marginal revenue (MR) is higher than the marginal cost (MC) and the revenue is at its highest.
3. (i) Coffee leaf rust.
 (ii) Yellow-orange powdery spots on the underside of the leaf.
 (iii) • Growing resistant varieties.
 • Spraying with fungicides.
 • Open pruning.
 (iv) *Hemilea vastatrix*.

Sample Paper 15

PRACTICAL PAPER 332/2 (30 marks)

1. (a) 1 - A cow
 2 - A pig.
 3 - A sheep.
 (b) 1 - Ruminant.
 2 - Non-ruminant.
 3 - Ruminant.
 (c) (i) Animals numbered 1 and 3 usually require foot-trimming.
 (ii) Animal numbered 1 is usually dehorned.
 (iii) Animals 1, 2 and 3 are infected by mastitis.
 (d) (i) Ticks
 (ii) Tsetse flies
 (iii) Mites
 (e) (i) Anaplasmosis (ii) Trypanosomiasis
 (iii) Foot and mouth disease (iv) Foot rot
 (v) Brucellosis (vi) Anthrax
 (vii) Rinderpest (viii) Blackquarter.
 (f) (i) Specimen A (Dairy meal) is to 1.
 (ii) Specimen B (Rhodes grass) is to 1 & 3.
 (g) Specimen B is not suitable for feeding animal 2.
 (h) Animal 2 is simple-stomached and is incapable of digesting specimen B.
2. (a) W_1 - Feather.
 W_2 - Cattle horn.
 W_3 - Wool.
 W_4 - Skin.
 (b) W_1 - Poultry.
 W_2 - Cattle.
 W_3 - Sheep.
 W_4 - Sheep/goat.
 (c) 21 days.
 (d) 270-280 days.
 (e) (i) Making handbags.
 (ii) Shoe making, etc.

3. (a) (iii) Can be used for making car upholstery.
(a) X - is a sisal rope/twine.
(i) Tying livestock when milking.
(ii) To achieve a complete control of the animal e.g. halter in a show ground.
(iii) To restrain an animal for examination of injured areas, drug administration, castration, etc.
(iv) Tethering livestock for maximum use of pastures.
- (b) (i) Should be kept in a rain-proof structure.
(ii) Should be hanged when wet for the water to drip.
(iii) Repair any kinks.
(iv) Use it for the right job.
(v) Protect it from vermin e.g. rats.
- (c) (i) Specimen Y is couch grass.
(ii) It has underground rhizomes.

Sample Paper 16

PRACTICAL PAPER 332/2 (30 marks)

1. (a) (i) Identification of specimens:
A - is a marking gauge.
B - is a bench axe (hatchet).
C - is a wood chisel.
D - is a key-hole saw.
E - is a wire strainer.
- (ii) Uses of specimens:
A - Marking lines parallel to the edges of the stock (work) on wood metal surface to desired specifications in inches or centimetres.
B - Rough cutting or chopping in woodwork and sharpening wooden stakes for field-work markings.
C - Trimming off rough edges or ends on wood, framing and joinery (mortise work).
D - Making or cutting holes (key-holes) and making curved, irregular lines in woodwork.
E - Tightening or stretching fencing wires along the fence-lines before they are stapled to the posts.
- (b) Procedure followed when using specimen E.
(i) Make a loop of wire and pass round the corner or end-post of the fence.
(ii) Attach one gripper-end of the strainer to the wire loop and the other to the end of the wire to be stretched.
(iii) Fix the hook of the lever of the strainer to the correct link of the chain.
(iv) Tighten the wire by turning or moving the strainers lever towards the corner or end-post.
(v) Remove the hook and fix it to the next suitable link in the chain and repeat the straining action until the wire is tight enough.

- (vi) Using the staples, fix the tightened wire on to the fence posts and undo the strainers grips on the wires.
2. (a) Identification of specimens:
 Specimen M is a banana sucker or sword.
 Specimen N is a cassava stem cutting.
 Specimen P are bean seeds.
 Specimen Q are maize grains.
- (b) Specimens M and N are both used as vegetative propagation materials.
- (c) The dominant product or substance is both specimens N and Q is starch/carbohydrates.
- (d) The main difference between specimens P and Q is that:
 Specimen P is a legume while Q is a cereal.
- (e) The part of specimen N that is harvested and used as food is the root tuber.
3. (a) Balance sheet for NYOTA FARM as at December 31, 1990.

Liabilities	KShs.	Assets	KShs.
Sundry creditors		Land value	160,000
- K.G.G.C.U.	1,500	Buildings value	125,000
- Unga Ltd.	<u>500</u>	Dairy cattle value	25,000
	2,000	Young stock value	15,000
		Goats value	5,000
Owner's capital		Milking machine	10,000
		Equipment	80,000
(Net Capital)	458,700	Maize in store	9,000
		Potatoes for sale	3,500
		Beans in store	5,000
		Sheep	7,000
		Cattle salt	6,000
		Office supplies	1,400
		Sundry debtor (K.C.C.)	3,000
		Sundry (N.C.P.K.)	500
		Cash (at hand & bank)	5,300
TOTAL	460,700	TOTAL	460,700

- (b) (i) The manager of the farm stands a good chance of getting a loan of Kshs.200,000.
- (ii) The major points to consider in granting the loan are:
- Fixed assets (land and buildings) of the farm.
 - Net capital.

Sample Paper 17

PRACTICAL PAPER 332/2 (30 marks)

1. M₁: Boiled brown egg.
 M₂: White fertilised egg stored for two weeks.

- M₃: White fertilised fresh egg.
 M₄: White fresh egg from a hen which is poorly managed i.e. tiny egg.
- (a) Observations:
 M₁ and M₂ - Float in water.
 M₃ and M₄ - Sink in water.
- (b) Air space observed.
- (c) M₁ is boiled while the rests are not boiled, M₁, is also brown while the rest are white.
- (d) Breed characteristic of the layer.
- (e) Specimen L is a concrete block of the layer.
 The three ingredients used in the mixture are sand, ballast and water.

2. A₁ - Maize grains attacked by weevils
 A₂ - Tomato fruit attacked by blight
- (a) Maize weevils (*Sitophilus zeamais*).
- (b) Tunnel underneath the seed coat bored by the larvae. Circular holes on the surface of the grain. The holes have a clearcut outline.
- (c) • Dusting the maize grains by use of appropriate insecticides e.g. Actellic.
 • Proper storage hygiene.
 • Drying the grain to a low moisture content 12% M.
 • Rotation of crops in the field.
- (d) Tomato blight.
- (e) • Dark brown or dead patches appear on the leaves or stems and the plant often dies.
 • Brownish dry rot of the fruits.
- (f) Control Measures:
 • Spray fungicide e.g. Dithane M45.
 • Crop rotation.
 • Crop hygiene.
 • Closed season.

3. (a) and (b)

Specimen	Litmus paper	Observation
C	Red	No change
	Blue	Red
D	Red	Blue
	Blue	No change

C: Sour liquid milk.

D: Fresh milk.

- (c) The differences in the two specimens is that in C, the multiplication of bacteria is high while in D it is low.
- (d) D.

Sample Paper 18

PRACTICAL PAPER 332/2 (30 marks)

1. (a) (i) A₁ - is a potato plant.
 (ii) A₂ - is a maize plant.

- (b) (i) Specimen A₁ has been attacked by potato blight disease.
 (ii) • Growing resistant varieties of potato.
 • Spraying with fungicides e.g. Ridomil, Copper, Zineb or Maneb.
 (iii) Specimen A₂ has been badly damaged by Maize stalk-borer.
 (iv) • Early planting of maize crop.
 • Application of insecticides down the funnel, 3-4 weeks after emergence.
 • Burning maize stalks after harvesting
- (c) (i) Specimen B is a tomato fruit.
 (ii) It shows signs of damage by American bollworm.
 (iii) • Spraying with insecticides
2. (a) (i) Specimen C is a diammonium phosphate fertilizer (D.A.P.).
 (ii) • Phosphorus
 • Nitrogen or nitrates.
 (iii) When growing maize, specimen C (diammonium phosphate) is applied during planting time.
- (b) (i) Specimen D is calcium ammonium nitrate (C.A.N.).
 (ii) It supplies plants with
 • Calcium
 • Nitrogen in ammonium form.
 (iii) Specimen D is applied to maize as top-dressing, when the crop is about 45-60 cm high.
- (c) (i) Store them in a dry place (shelter) which is raised from the floor.
 (ii) keep in containers that do not allow moisture into them; i.e. sealed containers.
 (iii) Ensure that the containers used are not metallic.
- (d) The parts labelled in the diagram above are:
 A - Gutter to tap rain water from the roof.
 B - Filter to retain or prevent any impurities from getting into the tank.
 C - Overflow pipe or spout.
 D - Funnel to direct water into the tank.
 E - Main tank body.
 F - Base made of concrete to support the tank.
 G - Outlet pipe with a tap.
 H - Top or lid to provide cover to the tank.
3. X₁ - Red soil from tea growing zone.
 X₂ - Black soil from recently burnt sites.
- (a) (i) Procedure:
 Add a small quantity of soil in a test tube then add a little water, shake the mixture and allow it to settle, then add a little amount of universal soil indicator. Then make the observation of the colour change, compare with the colour chart and record pH.
 (ii) Observations and deductions:
 X₁ - pH 5.0 - 6.0; acidic.
 X₂ - pH 9.0 - 10.0; alkaline/basic
- (b) (i) Barium sulphate to break the organic matter or flocculate and precipitate the colloids of clay particles.
 (ii) Free from dissolved mineral salts.
- (c) X₁ Because of the low pH i.e. acidic soils.

Sample Paper 19

PRACTICAL PAPER 332/2 (30 marks)

1.

Specimen	Identity	Uses on a mixed farm
A	Cattle Halter	Restraining or controlling and leading cattle on the farm
B	Iron dehorner	Destroying the horn-buds to prevent the growth of horns in animals.
C	Vet thermometer	Used to detect or determine the animal's body temperature.
D	Trimming knife	Trimming or cutting short overgrown hooves of animals.
E	Claw hammer	Driving, removing or straightening nails or wires in wood-work.
F	Pincers	- Cutting nails and wires to required sizes. - Withdrawing (pulling out) nails
G	Star-screw driver	Driving in or out the star-head screws from wood or metal work.
H	Spokes have	Smoothing the cylindrical surface of wood e.g. handles of axes
I	Garden rake	Collecting and/or removing rubbish or trash and stones during seedbed preparation. Also smoothing seedbed
J	Pick axe	Used to dig up tree stumps and roots. Also used to break hard ground of stones.

2.

(a)	Specimen	Identity	Agricultural use
	B ₁	Cold chisel	Trimming off rough edges on stones and metals.
	B ₂	Secateur fruits etc.	Pruning young tree crops e.g. coffee, tea, citrus.
	B ₃	Milking salve or jelly	Smooths the teats of lactating livestock e.g. cows.

- (b) B₁ - Oiling the metal parts
 - Cleaning it after use to remove pieces of dust.
 - Sharpening the cutting edge.
 - Removal of mushroom on the head.
- B₂ - Oiling to prevent rusting.
 - Cleaning it after use.
 - Replacing worn out parts.
 - Sharpening the cutting edge.

3. (a) K₁ is a milk/cream separator.
 K₂ is a stirrup (bucket) spray pump.

- (b) (i) When the handle is turned it rotates a central pin fitted with a gicator blades.
(ii) This rotary motion causes the blades to revolve at 6000-9000 revolutions per minute, creating a centrifugal force against the milk in the separator.
(iii) This spinning action forces the lighter solids (butterfat or cream) to move upwards while the heavier skim-milk sinks to the bottom of the separator.
(iv) The cream is then let out or ejected through the upper spout while the skim-milk flows out through the lower outlet.
- (c) (i) Nozzle (ii) Lance
(iii) Trigger (hand) control value (iv) Delivery hose.
(v) Handle (vi) Piston
(vii) Stirrup (viii) Barrel (compression cylinder).
- (d) (i) It is simple to operate and easily available.
(ii) It is cheap to buy and maintain.
(iii) It is durable under good care.
(iv) Does not need elaborate installation to operate.

Sample Paper 20

PRACTICAL PAPER 332/2 (30 marks)

1. Profit & Loss Account for Mr. Maina at the end of 1990

Sales & Receipts	Shs.	Cts.	Purchases & Expenses	Shs.	Cts.
Mohai	50,000	00	Opening valuation	125,000	00
Rabbits	10,000	00	Goats	2,000	00
Pigs	35,000	00	Poultry	15,000	00
Groundnuts	100,000	00	Fuel for grindingmill	12,500	00
Fruits(orange)	15,000	00	Dairy meal	45,000	00
Eggs to hotel	2,500	00	Pasture seeds	5,000	00
Closing Valuation	200,000	00	Transportation of farm produce	15,000	00
			Casual labourers	2,000	00
			Ox-plough	20,000	00
			Sub-total	241,500	00
			Profit B/F	171,000	00
TOTAL	412,500	00	TOTAL	412,500	00

2. (a) Specimen E is a knap sack sprayer.
(b) This specimen is used in applying agro- chemicals (Herbicides and pesticides) in spray (liquid) form.

(c)

Part/No.	Name	Functions
1	Hand control valve (trigger)	Controls and regulates the rate of spray delivery.
2	Tank (main body)	Carries the spray liquid during spraying work.
3	Hose/pipe	Delivers spray liquid from the tank to the lance and nozzles for ejection.
4	Nozzle	Atomizes the spray liquid and ejects it as a spray.

(d) Precautionary measures observed when using specimen E to ensure the safety of the operator.

- (i) Wear protective clothing e.g gloves, overalls, goggles.
- (ii) Do not suck blocked nozzles. Use other means to remove the blockage.
- (iii) Do not move against the direction of the wind while spraying.
- (iv) Avoid smoking while spraying.
- (v) Use gas masks over the face to avoid inhaling the chemical fumes.
- (vi) Avoid direct contact of chemicals to the skin.

3. (a) U_1 - wood chisel.

U_2 - Cold Chisel.

(b) U_1 is used in cutting wood/working in wood work while U_2 is used in cutting metals.

- (c)
- Keep the cutting edges sharp.
 - Keep them in their tool rack for proper and safe storage.
 - Remove the mushrooms around the head.
 - Use them for the right job.
 - Apply old engine oil to prevent rusting.
 - Replace worn out handle especially in U_1 .

(d) U_1

- (i) Cutting holes in wood.
- (ii) Remove thin layers of unwanted materials in wood e.g. when making doors or windows.
- (iii.) Used when joining two pieces of timber.

U_2

- (i) Cutting metal rods.

- (ii) Trimming unnecessary protrusions in metals.
- (iii) Shaping metals.