AGRICULTURE PAPER 1
SECTION A (30 marks)

1. Disadvantages of intensive system of farming.
   i) Requires high initial capital/Expensive
   ii) Is labour expensive
   iii) Requires high level of management/skilled labour (2 x ½ = 1 mark)

2. 4 methods of farming.
   i) Shifting cultivation
   ii) Nomadic pastoralism
   iii) Organic farming
   iv) Mixed farming
   v) Agroforestry (4 x ½ = 2 marks)

3. a) Nitrogen fixation
   - Process in which atmospheric nitrogen is converted to nitrates for plant uptake. (1 x 1 = 1 mark)

   b) Phosphorous fixation
   - Process in which phosphorous combines with other elements to form compounds that cannot be absorbed by plants. (1 x 1 = 1 mark)

4. 4 reasons for keeping livestock health records.
   i) Help in calculation of treatment and health costs
   ii) Help in culling/selecting livestock
   iii) Help in future diagnosis treatment and control measures
   iv) Help determine the common diseases and parasites/prevent diseases and parasites
   v) Help to support livestock insurance claims (4 x ½ = 2 marks)

5. Relationship between scarcity and choice.
   - Scarcity is where production resources are limited in supply relative to demand; therefore a choice has to be made on which enterprise(s) to allocate the limited resources. (2 marks - mark as a whole)

6. 2 reasons for land fragmentation.
   i) Buying/selling/paying debts/compensation
   ii) Inheritance
   iii) Settlement and resettlement
   iv) Gift/donations
   v) Shifting cultivation (2 x ½ = 2 marks)

7. Advantages of individual tenure system.

i) Easy to acquire credit.
ii) Land disputes are minimized
iii) Long term investment is encouraged
iv) Incentive to conserve and improve land
v) Easy to plan and make decisions
vi) Easy to sell/lease whole or part of the land. (4 x ½ = 2 marks)

8. 4 features for choosing powers
i) Durability
ii) Strength/ability to withstand pressure/thickness of the wall of the pipe
iii) Diameter/size of the pipe
iv) Workability/manoeverability of the pipe
v) Colour (4 x ½ = 2 marks)
9. 4 reasons for treating water.
i) Remove chemical impurities/softening of water
ii) Kill disease causing organisms/kill germs/pathogens
iii) Remove bad smells and taste
iv) Remove impurities of solid particles (4 x ½ = 2 marks)

10. 4 Statutory Boards
i) Kenya Sugar Board/Authority (KSB/KSA)
ii) Kenya Tea Development Authority/Agency/Tea board of Kenya (KTDA, TBK)
iii) National Cereals and Produce Board (NCPB)
iv) Coffee Board of Kenya (CBK)
v) Pyrethrum Board of Kenya (PBK)
vi) Cotton Lint and Seed Marketing Board/Cotton Board of Kenya (CLSMB, CBK)
vii) Horticultural Crop Development Authority (HCDA)
viii) Kenya Sisal Board (KSB) (4 x ½ = 2 marks)

11. 4 marketing functions of KCC
i) Buying and assembling milk/collection
ii) Processing milk
iii) Market research
iv) Advertisement/promotion of milk/milk products
v) Strategic storage of milk products
vi) Distribution of milk/transportation
vii) Selling milk
viii) Marketing and packaging
ix) Risk bearing
x) Financing - related to marketing function
xi) Grading/standardization
Rej: Marketing alone (4 x ½ = 2 marks)

12.

i) Increases seed soil contact
ii) Compacts soil/seed to protect it against agents of erosion
iii) Crushing large soil clods
iv) Soil levelling (2 x ½ = 2 marks)

b) Levelling
i) Ensures uniform depth of planting/uniform germination/uniform fertilizer application
ii) Ensures uniform water level in paddy
iii) Rice fields
iv) To remove depression which collect water leading to rotting of seeds.(2 x ½ = 1 mark)

13. 3 activities in clearing land
i) Tree felling
ii) Stumping/removal of stumps/destumping
iii) Slashing/mowing (3 x ½ = 1½ marks)

14. 5 Advantages of zero grazing
i) Requires little land
ii) Quick accumulation of manure
iii) Easy to control diseases and parasites
iv) Less wastage of feeds
v) Has high stocking rate
vi) High milk yield
vii) Efficient use of fodder (5 x ½ = 2½ marks)

15. 4 factors determining stage of crop harvesting.
i) Intended use of the crop
ii) Chemical concentration of the produce/stage of maturity/change in colour
iii) Prevailing weather conditions
iv) Market demand for the produce/market price(4 x ½ = 2 marks)

16. a) Growth Cycle
i) Annual weeds
ii) Biennual weeds
iii) Perennial weeds (2 x ½ = 1 mark)

b)
i) Broad leaved weeds
ii) Narrow leaved weeds (2 x ½ = 1 mark)

SECTION B (20 marks)

17. a) Weed
- Couch grass/*Digitaria scalarum* (1 x ½ = ½ mark)

b) Why its difficult to control.
- Presence of underground stems/rhizomes which are difficult to control/underground storage structure (1 x 1 = 1 mark)

c) 4 control
i) Uprooting
ii) Cultivation
iii) Slashing
iv) Use of herbicides
v) Mulching
Rej: Rogueing (4 x 1/2 = 2 marks)

18. a) Soil Sample with highest acidity
- Sample S1 (1 x 1/2 = 1/2 mark)

b) Lowering pH
i) Application of acidic fertilizers: Accept S/A; ASN; DAP; MAP
Rej: Nitrogenous fertilizers
ii) Application of sulphur (2 x 1/2 = 1 mark)

c) Soil sample suitable for tea growing
i) S_2
ii) S_3
iii) S_4

19.
i) Extraction to remove seeds from pods/fruits
ii) Drying to reduce seed moisture content
iii) Testing to verify seed quality
iv) Treatment to break dormancy/helps improve germination/soaking in water
v) Seed dressing to control pests and diseases
vi) Seed innoculation to improve nitrogen fixation
vii) Washing/cleaning to remove mucilage (4 x 1 = 4 marks)
No procedure

20. a) i) Correct pruning
- B
NB: Wrong identity
Wrong reason
(1 x 1/2 = 1/2 mark)

ii) Reason
- Slant cut is a few centimetres above the bud/leaf (1 x 1 = 1 mark)

b) 2 how pruning controls diseases
i) Removes diseased parts
ii) Creates unfavourable conditions/environment for disease agents
iii) Facilitates penetration of chemical sprays. (2 x ½ = 1 marks)

21. KABURU FARM CASH ANALYSIS FOR JANUARY 2009 • No marks for title

RECEIPTS (SALES AND RECEIPTS) EXPENDITURE(PURCHASESAND EXPENSES)

Date	Description	Total	Cash	Livestock	Crop	Date	Description	Total	Crops	Livestock
		Ksh	Ksh	Ksh		Ksh	Ksh	Ksh		
01/1/09	Cash in hand	30,000	30,000			15/1/09	Seeds for planting	7,500	7,500	
05/1/09	Livestock sales	80,000		80,000		20/1/09	Paid KFA for fertilizer	16,400	16,400	
08/1/09	Crop sales	50,000		50,000		25/1/09	Bought livestock feed	50,000		50,000
31/1/09	Cash for milk delivery to KCC	120,000		120,000		30/1/09	Paid wages for planting & weeding	56,000	56,000	
						31/1/09	Transport charges for milk delivery	9,000		9,000
	TOTAL	280,000	30,000	200,000	50,000		TOTAL	138,900	79,900	59,000
							Closing balance/ cash at hand	141,000		
	TOTAL	280,000					TOTAL	280,000		

NB: Check for double entry

21. • Correct labelling of expenditure and receipt columns 1 x ½ = ½ mark
• Correct entries by dates 9 x ½ = 4½ marks
• Balancing 1 x ½ = ½ mark
Closing balance
Cash at hand i.e 141,000

22. a) Figures 18:46 on a fertilizer bag mean
i) 18% Nitrogen (NO
ii) 46% phosphorous pentoxide (P_2O_5)
iii) 10% Potassium oxide (K2O) (3 x ½ = 1½ marks)

b) Filler material
= 100 - (18 + 46 + 10)
= 100 - 74
= 26kg or 26%
Ignore working
Mark answer only i.e 26
Unit must be therefore a score. 1 x 1 = 1 mark

SECTION C (40 marks)

23. a) 8 Factors that encourage soil erosion.
i) Lack of ground cover exposes soil to agents of soil erosion/removal of cover crops
ii) Steep slopes increase the speed of surface run-offs hence erosive power of water
iii) Light/sandy soils are easily carried away by agents of soil erosion.
iv) Shallow soils are easily saturated with water and carried away
v) High rainfall intensity on bare ground/leads at detachment of soil hence run off
vi) Frequent cultivation/over cultivation pulverizes the soil making it easy to detach and carry away.
vii) Overstocking leads to overgrazing which destroys ground cover exposing it to agents of erosion.
viii) Burning/deforestation destroys vegetation cover and exposes soil to agents of erosion.
ix) Ploughing up and down the slope creates channels which speed up and increases the erosive it to agents of water.
x) Cultivation of river banks destroys riverine (Viparia) vegetation & destroys soil structure exposing it to agents of erosion.
xi) Cultivating the soil when too dry destroys soil structure making it easy to be eroded.
xii) Long slopes increases volume speed of run off hence increasing erosive power of water.
Question if filter not qualified = No mark
Factor & effect
xiii) High rainfall amount increase saturation of soil hence increase in soil erosion.

b) i) Mulching to conserve moisture
ii) Erection of shade to minimize evapotranspiration
iii) Weed control to reduce competition with seedlings for nutrients, light, space etc
iv) Pest and disease control to ensure healthy and vigorously growing seedlings
v) Pricking out/thinning to minimise competition for growth elements
vi) Fertilizer application to supplement nutrients in the soil
vii) Watering to ensure adequate moisture supply
viii) Hardening off/removing shade/reducing watering to acclimatize the seedling to conditions in the field.
ix) Removal of mulch immediately after germination
NB: Correctly stated (7 x 1 = 7 marks)

c) 5 soils factors that determine a crop growth in an area.
i) Soil drainage/rate of water infiltration and percolation through the soil
ii) Soil structure/arrangement of soil particles or aggregates/water holding capacity
iii) Soil nutrient content/variety and quantity of mineral nutrients in the soil/Soil fertility
iv) Soil profile/soil depth/depth and arrangement of soil horizons in relation to the rooting systems of the crop
v) Soil pH/chemical properties of the soil/degree of acidity or alkalinity of the soil solution
vi) Soil borne pests and diseases/the prevalent pests/diseases in the soil
vii) Water holding capacity
5 correctly stated (5 x 1 = 5 marks)

24. a) 5 effects of high temperature
i) Increases incidences of some pests/parasite and diseases
ii) Improves quality of certain crops e.g fruits, pineapples, papaws'
iii)Lowers quality of certain crops e.g pyrethrum
iv) Increases rate of evapotranspiration/wilting in plants
v) Increases rate of growth for early maturity in crops
vi) Limits distribution of exotic livestock breeds
vii) Lowers production in livestock
viii) Influences design of farm buildings and structures
ix) Lowers labour productivity (5 x 1 = 5 marks)

b) 4 precautions observed in cotton harvesting
i) Sisal bags/gunny bags should not be used to prevent mixing of lint and sisal fibres which causes ginning problems
ii) Hands should be cleaned to avoid staining of the lint
iii) Picking should be done when the lint is dry to prevent fibres from sticking together
iv) Use clean containers for picking
v) Use different containers for AR (Safi) and BR (fifi) gardens of cotton to ensure quality/separation
vi) Picking should be done immediately the bolls open/split to prevent staining by dust/dirt
vii) Avoid picking leaves & twigs to avoid (containers)
1 x 4 = 4 marks

b) Sugar cane harvesting
i) Harvest at the correct age / 13 -22 months for plant crop/ 12 - 18 months for rotation
ii) Take sugar can samples of testing to determine maturity.
iii) Cut the mature cane at the base/near the ground
iv) Cut off the green tops
v) Strip off green leaves/burn the cane
vi) Deliver the cane to the factory within 48 hours/immediately after cutting
vii) Use a cane harvesting machete. (6 x 1/2 = 3 marks)

c) 8 factors considered in farm planning
i) Risk and uncertainties: enterprises should be analysed to determine the risks and uncertainties involved.
ii) Security: enterprises which require more security should be sited near the farm house/provision of adequate security
iii) Land size: a large number of enterprises can be established on a large scale compared to a small scale farm.
iv) Current trends in labour market: to determine availability and cost of labour especially during peak period.
v) Farmers objectives and preferences: to ensure the farmer who is the operator has a sense of ownership of the plan and brings about motivation

vi) Current market trends and prices of outputs: to ensure consideration of enterprises with high profits returns.
vii) Availability and cost of farm inputs: to identify enterprises that are affordable and whose inputs are readily available.
viii) Government policy/regulation: to seek permission for enterprises undertaken on quota system e.g coffee growing and avoid enterprises and farming systems prohibited by the government
ix) Environmental factors: soil, climate and topography should be analysed to determine livestock crop enterprises that are suitable to the local ecological conditions.
x) Communication and transport facilities and facilitate movement of outputs to the market and supply of inputs. Also helps in conveying improved methods of farming and market trends.
xi) Availability of capital: to acquire farm inputs
xii) Possible production enterprises: should be identified and analysed so that suitable and profitable enterprises are selected
- Wrong factor
Award for explanation
1/2 mk - stating the factor = 1/2 x 8 = 4

25. a) 6 physical methods of controlling crops pests
i) Trapping/picking and killing the pests
ii) Use of lethal temperature to kill the pests
iii) Flood the suffocate and kill the pests
iv) Use of physical barriers e.g fences, rat guards, etc to keep the pests away from the crop/produce
v) Proper drying to make penetration difficult
vi) Use of explosive to destroy breeding grounds and the kill the pests
vii) Suffocation: carbon dioxide build up to suffocate pests in stores especially cyprus bins. (6 x 1 = 6 marks)

b) Field management of bulb onions
i) Weed control through shallow cultivation to avoid damage to the shallow inion roots
ii) Remove excess soil around the roots gradually to facilitate bulb expansion
iii) Water regularly at the early stages to ensure adequate moisture supply
iv) Top dress with nitrogenous fertilizer at appropriate rates
v) Control pests e.g thrips using appropriate pesticides
vi) Control diseases e.g rusts, mildews using appropriate method. (4 x 1 = 4 marks)

ii) Harvesting of bulb onions
i) Is done 4 -5 months after planting/when leaves wither/turn brown
ii) Cut break and bend this tops at the neck
iii) Harvesting is done by lifting/pulling/digging out the crop
iv) Leave the bulbs on the ground/undershade to dry for 3 days and turn frequently to ensure uniform drying.
3 x 1 = 3 marks

c) 7 factors influencing seed rate
i) Intended use of the crop e.g fodder maize requires high seed rate than grain maize.
ii) Germination percentage - high speed rate is required for seeds with low germination percentage
iii) Method of planting: Broadcasting requires high seed rate than row planting.
iv) Number of seeds per hole: two or more seeds per hole requires more seed rate than one seed per hole.
v) Soil fertility: poor/infertile soils require low seed are because crops are widely spread compared to fertile soils.
vi) Growth characteristics of the crop: tall/tillering/indeterminate varieties require low seed rate compared to short/less tillering/determinate varieties
vii) Spacing: High sped rate is required in closer spacing than wider spacing
viii) Seed purity: Impure seed/containing chaff and foreign materials will lead to high seed rate compared to pure seed
ix) Pure/mixed stand
High seed rate for pure stand and low seed rate for mixed stand.
1/2 mk for stated factor = 1/2 x 7 = 3 1/2 mk
1/2 mk for explanation given = 1/2 x 7 = 3 1/2 mk

AGRICULTURE PAPER 2
SECTION A (30 marks)

1. Causal agent of anaplasmosis disease in cattle
   - Protozoa/anaplasma marginate/anaplasma spp. (1 x 1/2 = 1/2 mark)

2. Materials used in constructing a Kenya Top Bar Hive (K.T.B.H)
   - Timber
   - Nails
   - Plain wire
   - Iron sheets (4 x 1/2 = 2 marks)

3. a) Breeds of dairy cattle that originated from the channel islands:
   - Guernsey
   - Jersey (2 x 1/2 = 1 mark)

   b) i) Chinchilla rabbit
   - Grey/silvery (1 x 1/2 = 1/2 mark)

   ii) Toggenburg
   - Brown with two white stripes running down the face (1 x 1/2 = 1/2 mark)

4. Reasons for castration
   - Prevent uncontrolled mating/breeding
   - Improve the quality of meat
   - Promote faster growth/facilitate weigh gain

- Make then docile
- Control breeding diseases
- Control inbreeding (4 x 1/2 = 2 marks)

5. Characteristics of roughages
   - Bulky
   - High fibre content
   - Low nutrient content
   - Low digestibility
   - Mainly of plant origin (4 x 1/2 = 2 marks)

6. Functions of the poultry digestive system.
   - Softening/moistening food
   - Temporary food storage (2 x 1/2 = 1 mark)

7. Roles of worker bees kills.
   - Kills the drones after mating the queen
   - Scouting for a new home
   - collect nectar/water/gum/propolis/pollen
   - Make honey combs
   - Protect the colony
   - Clean the hive
   - Make honey and bees wax
   - Seal the stacks and services (4 x 1/2 = 2 marks)

8. Reasons for controlling livestock diseases.
   - Reduces spread of livestock diseases/production of healthy young ones
   - Promote fast growth and early maturity - rej to maintain good health in livestock
- Make them have long productive life.
   - Improve quality and safety of products
   - Improve quantity of products
   - Reduce cost of production. (4 x 1/2 = 2 marks)

9. Control measures of fowl pox diseases in poultry.
   - Observe hygiene in poultry house
   - Regular vaccination
   - Slaughter and properly dispose carcass of affected birds - rej culling, killing atone
   (2 x 1/2 = 1mark)

10. a) shovel
    - Mixing mortar/manure
    - Lifting soil/manure (1 x 1/2 = 1/2 mark)

    b) Strip cup

- To detect mastitis infection in milk. (1 x 1/2 = 1/2 mark)

11. Reasons for maintenance practices.
    - For safety of the user/operator
    - Ensure efficiency of operations
    - Increases durability
    - Reduces costs on repairs and replacements
    - Avoid damage to the mower. (3 x 1/2 = 11/2 marks)

12. Limitations of using solar power
    - Solar trapping devices are expensive
    - Power supply/trapping fluctuates depending on weather conditions
    - Solar trapping is limited to day light
    - Requires skilled labour to handle the devices (3 x 1/2 = 11/2 mark)

13. Importance of thermostat
    - Prevents engine from over-heating
    - Maintains optimum engine temperature during operation (1 x 1 = 1 mark)

14. Advantages of disc plough over a mould board plough
    - Discs roll over obstacles
    - Requires less draught power
    - Requires less maintenance costs
    - Works better on dry, hard and sticky soils (2 x 1/2 = 1mark)

15. Tools used when laying concrete blocks during construction of a wall.
    - Plumb bob/plumb line
    - Mason's trowel
    - Spirit level/pipe level
    - Wood float/steel float
    - Masons square
    - String/masons line/line (4 x 1/2 = 2 marks)

16. Importance of guard rails in a farrowing pen.
    - Prevents sow from crushing piglets rej. trampling of piglets
    - Prevents sow from eating creep feeds (1 x 1 = 1 mark)
17. Reasons for having foot bath in a cattle dip.
    - Clean the feet of animals
    - Control foot rot (2 x 1/2 = 1 mark)

18. a) Crutching and ringing
    - Crutching is the cutting of wool around the external reproductive organs of a female sheep to facilitate mating

- Ringing is the cutting of wool around the sheath of the penis in rams to facilitate mating. (Mark as a whole 2 marks)

b) Cropping and harvesting
- Cropping is the selective removal of fish of marketable size from the pond.
- Harvesting is the removal of all the fish from the pond. (Mark as a whole 2 marks)

19. Ways in which infectious diseases can spread
- through vectors
- through ingestion of contaminated food and water/through food and water
- Through contact
- Through inhalation of contaminated air/through air. (3 x 1/2 = 11/2 marks)

SECTION B (20 marks)

20. a) Causes of chicks' behaviour in the illustrations A, B and C
A Presence of draught makes the chicks to crowd on one side of the brooder
B Cold/inadequate heat makes the chicks to crowd around the heat source
C High/Excess heat makes the chicks to move away from the heat source (3 x 1 = 3 marks)

b) Reasons for making brooder wall round in shape
- To discourage overcrowding of chicks at the corners to avoid suffocation. (1 x 1 = 1 mark)

21. a) F - Cervix
H - Oviduct/Fallopian tube (2 x 1/2 = 1 mark)

b) Presence of part labelled G
- Produces ova/female gametes
- Products hormones that control ovulation cycle/estrogen cycle 2 x 1 = 2 marks

c) Role of J
- Allows implantation of the zygote and development of the foetus.
- Contracts to expel foetus
- Implantation of the foetus (1 x 1 = 1 mark)

22. a) K - Beef tapeworm/Taenia saginata/Taenia spp rej tapeworm
L - Roundworm/Ascaris lumbricodes/Ascaris spp (2 x 1/2 = 1 mark)

b) Bladder worm/Embryo Cyst/Cystococus cellulase/cyst (1 x 1/2 = 1/2 mark)

c) Procedure of handling a heifer when administering a liquid deworming drug.
- Restrain the heifer in a crush
- Hold it by the nostrils and lift up its head
- Open its mouth

- Release the drug into the mouth as far back as possible/place the drenching gun/bottle on the mouth

(Mark until the procedure is broken 21/2 marks
5 x 1/2 = 21/2 marks)

23. a) Granary/modern store/crib (1 x 1/2 = 1./2 mark)

b) Function of M
- Prevents entry of rodents into the store.
- To keep off vermins (1 x 1/2 = 1/2 mark)

c) Maintenance practices on the structure
- repair and replace worn out parts
- Cleaning
- Fumigating/dusting with appropriate pesticides. (2 x 1/2 = 1 mark)

a) N - Tank
P - delivery note rej. hose pipe/hose alone
Q - trigger
R - Lance

b) Function of S
- Breaks the liquid chemical into desired size of droplets/spray form/fume droplets/jets (1 x 1 = 1 mark)

25. a) Dairy breed (1 x 1/2 = 1/2 mark)

b) Friesian/Jersey/Guernsey/Ayrshire (1 x 1/2 = 1/2 mark)

c) Physical characteristics of dairy cattle
- Wedge/triangular shaped
- Straight topline
- Large and well developed udders teats
- Prominent milk veins
- Lean bodies/thinly fleshed waters
- Large stomach
- small head and long neck
- Well set wide hind quarters
- Prominent/visible pin bones
- Long thin legs

26 a) Advantages of artificial insemination
- Controls breeding diseases/parasites
- Controls breeding
- Is a quicker method of obtaining a proven bull

- Is easy and cheap to transport semen to far areas
- Semen from a superior bull can be used to serve many cows
- Farmers who cannot afford to buy a superior bull can access the service at a low cost
- Bulls that cannot serve naturally due to physically injuries/defects can be utilized.
- Prevents injuries to cows by heavy bulls
- Danger of injury/damage by aggressive bulls is eliminated
- Semen can be stored for a long period even after the death of the bull
- Saves the cost of rearing a bull
- Controls in breeding
- It is a useful research tool. (5 x 1 = 5 marks)

b) Signs of Trypanosomiasis (Nagana) disease in livestock
- General body weakness/dullness

Reduced milk production
- Swollen lymph nodes
- Rough coat and cracked skin where there is no hair
- Running eyes/lachrimation which can result in blindness/sunken eyes
- Diarrhoea
- Emaciation/loss of weight
- Loss of hair toward the tail end
- Abortion in pregnant females
- High fever/temperature
- Anaemia
- Loss of appetite
- Swollen parts of the belly (10 x 1 = 10 marks)

c) Functions of water
- Component of body cells and many body fluids e.g blood
- Used in biochemical reactions in the body e.g digestion
- Regulates body temperature through sweating and evaporation
- Excretion of metabolic wastes from the body
- Formation of products e.g milk, eggs etc
- Makes cells turgid to maintain their shape.
- Transportation of nutrients from one part of the body to another (5 x 1 = 5 marks)

27. a) Use of the various parts of a zero grazing unit in dairy farming.
- Milk recording room - weighing and milking records
- Milking stall - rearing calf to weaning
- Calf pen - rearing calf up to weaning
- Sleeping cubicles - provide shelter and warmth
- Loofing area - dunging, feeding, exercise and sunning
- Feed and water troughs - feeding and watering the animals
- Feed preparation room - preparing feed rations and cropping fodder rej. chaff cutter region
- Store - storing/keeping dairy equipment/feeds

- Manure storage areas storing measure
Parts is tied to the function
6 x 1 = 6 marks

b) How power transmitted from a tractor engine is made available for use on a farm.
i) Propeller shaft
- connects gear box to the differential which has wheel axles
- Wheel axles rotate to move the tractor and push or pull trailed implements.
(2 x 1 = 2 marks)

ii) Power take Off (P.T.O) shaft
- Rotates at the same speed as the crankshaft.
- Its connected to machines e.g mowers, sprayers, shelters etc to perform farm operations (2 x 1 = 2 marks)

iii) Hydraulic system
- Is attached to the three-point linkage or attached on hydraulic mechanism trailer.
- the three point linkage operates (raises/lowers) the mounted implements during farm operations or for off loading (2 x 1 = 2 marks)

c) Ways in which ticks can be controlled
- Burning infested pastures to kill developmental stages. (1/2 mark for stating)
- Rotational grazing to starve and kill developmental stages. (1/2 mark for sta
- hand picking and killing the ticks.
- Fencing off pasture land and farm to keep away infested animals/double feeding re. fencing al
- Ploughing pasture land to burry and kill developmental stages.
- Top dressing pasture using lime to kill the ticks.
- Spraying using acaricides/had dressing/dipping to kill ticks.
- Use of natural enemies - eat the
- self licking - dislodges ticks from the body. (8 x 1 = 8 marks)

28. a) Characteristics of a poor layer.
- Combs and wattles - small/shrivelled/shrunken. dry scaly and place.
- eyes - dull and pale yellow.
- Beak - yellowish in colour.
- Abdomen/breast - hard and full
- Vent - round, dry and less active
- Space between keen and pelvic bone - small and fits only one or two fingers
- Plummage - preened & glossy (smooth) beautiful
- Moulting - early morning
- Shants/feet - Yellowish n colour
- Broodiness - Is common/early moulting
- Temperature - easy and dull
Mark as whole

Accept - poor layer is inactive. (10 x 1 = 10 marks)

- Free from disease causing micro-organisms/pathogens
- Free from hair, dirt or dust.
- Free from bad odours and tastes/has good flavours.
- Chemical composition within expected standards. (3 x 1 = 3 marks)

ii) Factors influencing milk composition

1) Age of animal

- Butter fat in milk becomes less as an animal grows old thus young animals produce milk with higher BF than older animals.

1) Breed differences rej. species of the animal

2) Different breeds of cattle produce milk with differing percentage composition e.g Jersey produce higher BF than Friesian.

3) Type of wood eaten by an animal

Roughage feeds produce link with higher fats, lactose and protein compared to grains.

4) Diseases

Diseases such as mastitis reduce the lactose composition in milk because bacteria attack milk sugars.

5) Physiological condition of the animal.

Sick/extremely emaciated animals register low percentage of BF/during late pregnancy cows produce milk with low BF content.

-6) Stage of lactation

The BF content in milk is highest at the middle phase of the lactation period and lowers towards end of lactation.

7) Completeness of milking

Milk drawn last from udder during contains high BF content/last drop milk has BF content produce in the milk.

8) Season of the year - accept environmental condition

BF content increases during cold seasons.

9) Time of milking

- Milk produced in the morning has a lower BF content than milk produced in the evening

1/2 factor method

1/2 mk explanation (7 x 1 = 7 marks)

AGRICULTURE P1
2011

SECTION A (30 MARKS)

(a) Field management practices

-thining
-gaping (2 x ½ marks) =(1 mark)

(b) (i) Thinning: - Removes the excess seedlings from the field. (½ marks)
(ii) gaping - replaces seedlings /seeds that died/failed to germinate (½ marks)

2. (a) Variable costs

Wages for casual labour
Costs of food and water
Costs of drugs /chemicals/treatment (2 x(½ marks) =(1 mark)

(b) Fixed costs
Land rent/house rent
Salaries of regular/permanent labour Depreciation of machinery
Interest on borrowed loan.
Cost of equipments

(2 x(½ marks) =(1 mark)

(1 mark)

3. Disadvantages of monocroping

high risk of total less incase-of crop failure.
Under utilization of some soil nutrients
Build up of crop crop pests and diseases/weeds

Only specific mineral nutrients are absorbed /exhaustion of certain nutrients from the soil
Results in soil erosion in crops with poor ground coverage
Faster spread of pests and diseases.

(4 x(½ marks) =(2 marks)

4. Reasons for early land preparation.
Allows time for organic matter to decompose and form humus.
Facilitates timely subsequent operations.
Allows time for weeds to die /dehydrate
Allows weathering of soil clods before subsequent operations
Minimizes competition for labour
Allow pests and diseases causing organisms to starve and die,
Allows soil aeration /gaseous exchange to take place
Allow s water infiltration (1½ marks)

How crop rotation controls weeds

Crops associated with specific weeds are alternated with crops of different families to remove the appropriate host and break the life cycle of weeds.
Alternating with cover crops smoothers the weeds (2 x ½) 1mark

Qualities of a mother plant

Disease/pest resistant/tolerant.
Healthy/free from pests/diseases
High yielding
Well adapted to the environment/local ecological conditions.
Fast growth

(4x ½) 2mark

Factors on the choices of labour

Availability of labour
Size of the enterprise
Financial ability of the farmer/cost of labour
Type of the enterprise/type of the work

(a) Balance sheet

--showing the financial position of the farm business at a particular period of the year (½ mark)

(b) inventory

Recording all the assets owned by the farm business.

(c) cashbook

Recording book all transaction is involving receiving and paying out of cash on the farm

Functions of the A.S.K.

Holding competitive AGRICULTURA SHOWS/trade fairs /exbitions of livestock, crop and farm produce
Encouraging breeding and importation of pure breeds and improvement of indigenous livestock
Encouraging and assisting in official milk recording scheme.
Organising the running of Young Farmers Clubs.
Organising the National ploughing Contest

Publishing the Kenya stud book
Publishing the monthly journal "the kenya farmer"
Awarding bursaries for local and over seas studies/tours for its members (4 x ½) 2marks

10. Leaching;-

Washes dissolved mineral nutrients to the lower soil horizons beyond the reach of plants
(1x ½ mark) 1mk

11. Reasons for imposing quarantine

To test them for purity to prevent entry of noxious/foreign weeds into the country,
To test them for purity to prevent entry/spread of pests and diseases into the country;
Quality control (1x ½ mark)

12.methods of controlling bean anthracros disease

Use of certified seeds
Use of appropriate fungicides/chemicals
Crop rotations
Use of resistant varieties
Field hygiene/destruction of infected crop residues.
Rogueing ($4x^1/_2$) (2 marks)

13. post harvest practises

-threshig/shelling
-drying
-cleaning
-winowing
-sorting
-grading
-dusting
-parkage/bagging/parking
processing

($4\ x^1/_2$)

2mks

14. Non-competitive markets

Monopoly/monopolistic markets

Oligopoly/Oligopolistic markets
Lonopsony/monopsonisnc markets ($2x^1/_2$)
1mks

15. Settlement schemes

-Jet schemes
-Haraka schemes
-Shirika schemes
-Lari settlement schemes
-The squatter's settlement schemes
-Harmbee settlement schemes

16. (a) poisonus

-thorn apple/*Datura stramonium*
-sodom apple/*solanum inciunum*
-Tick berruy

(b) stains milk when eaten

Mexican marigold *Tagetes minuta*

17. AGRICULTURAL support services

Credit services
Marketing services
Agricultural machinery services
Agricultural research services
Farm input supply services (4x ½) 2mks

18. methods of harvesting trees

-coppicing cutting bark
-lopping/side pruning
-pollarding
-thinning

19. maintenance practices for trees

-protection when young/seedling
-pruning
-training

-grafting/top working
-watering
-shading
-weed control
-pest/disease control
-gapping

SECTION B 20 MARKS

20 (a) chiting/sprouting

(c) procedure of chiting

-Arrange the setts/tubers ia a store/with the rose-end facing upwards..
-Tubers are arranged 2-3 layers deep.
-Allow diffuse light through the store,
-Dust (spray)the setts/tubers with an appropriate insecticidyto control pests/aphids/tubermoths
- Sprinkle sorlie water on tubers if the conditions are dry.

21. (a) To-demonstrate the presence of living organisms in the soil. (1x1) (1 mark)

b) observation

Flask C

Lime water turns white/milky,/white precipitate

Flask D
No observable change /lime water remains clear

(c) Reasons for the answers in (b) above C

FLASK C

Lime water turns whits because living organisms exhaled carbon (IV) oxide
which reacted with calcium hydroxide to form a white precipitate (calcium carbonate)

Flask D

The heating of the soil killed the soil living organisms and no respiration occurred to produce carbon (IV) oxide. (1 mark)

22. The law illustrated

(a)

Law of diminishing returns.

(b) phase II

Each additional unit of fertilizer leads to a lower increase in total output of maize than the previous unit of fertilizer input (1x1) 1mk

Phase III

Each additional unit of fertilizer input leads to a decrease in total output of maize.
(1 x 1)

(1 mark)

(c) Importance

- Helps the farmer to identify the level of optimum fertilizer application in the production of maize.
(1 x 1)

(1 mark)

23.

Profit and Loss account of Makueni Farm for the year ended 30th June 2008

Expenditure	Ksh.	Cts	Income	Ksh.	Cts
Opening Valuation	80,000	00	Sales and Receipts		
Purchases and expenses			Rent received	10,000	00
Tractor repairs	30,000	00	Egg Sales	60,000	00
Tax paid	40,000	00	Maize sales	55,000	00
Interest on loan	20,000	00	Debts receivable	100,000	00
Purchase of inputs	90,000	00	Closing Valuation	90,000	00
Total	260,000	00	TOTAL	315,000	00
Net Profit	55,000	00			
	315,000	00		315,000	00

Award marks

1 Title - Profit and loss account for the year ended ½ mark
2 Expenditure Column (1 x ½) ½ mark
3 Income column (1 x ½) ½ mark
4 Correct entries in each column (2 x ½) (mark as a whole) 1 mark
Correct profit (1 x ½) ½ mark

4. (a) Paddocking / Rotational grazing
(1 x ½)

(½ mark)

b) ADVANTAGES

Reduces build up of crop pests and diseases,
Allows pasture to regrow before being grazed again;
Manure is evenly distributed in the field
Excess pasture can be conserved
Allows management practices on ungrazed portions e.g. reseeding, fertilizer application /weed control /irrigation /pest and diseases control
Ensures maximum utilization of pastures.

(5 x $^1/_2$) (2 $^1/_2$ marks)

25. (a) **The weed**

Wild oat/*Avena sterilis* (1x $^1/_2$) $^1/_{2\text{mark}}$

(b) **harmful effects**

Competes with crops for nutrients/light/space/water
Acts as an alternate host for pests/diseases
Lowers quality of produce
Increase cost of production
Lowers yields (2 marks)

SECTION (40 marks)

(a) Water treatment to remove solid impurities.

- At intake, water is passed through a series of sieves with different sizes of holes to .trap large solid particles. leaves, grass., sticks polythene stones
- Aluminium sulphate (alum) is added to water in the mixing chamber to
- Water is passed to a large circular coagulation tank where soil particles settle
- Water is the passed through a filtration tank where all the remaining solid particles are removed,
- The layers of sand and gravel in the filtration tank allow water to seep through very slowly and leave all the solid particles behind.

(5x1) (5 marks)

(b).Farm records that should be kept by a dairy farmer

Feed records:- They show the type of feeds and quantities given to animals at a given tyme

Breeding records ;-they show details of breeding partens of uarius animals in the farm/date of service/pregnancy diagnosis/expected calving date/sex of the calves and the sire

Labour records ;-Shows the number of workers /their grades/salaries/responsibilities and performance on the farm

Health records ;-shows incidences of disease/animals attacked/treatment given/response and control measures taken

Milk records:- shows the total milk yield from individual cows the quality of milk in terms of butter contents is also shown for every cow on the farm

marketing records;- shows the quantity of milk sold and the price per litre kilogram.
Also show me revenue earned from milk per given period of time/day/ /monthly year

Inventory records:- Show all the assets buildings' machinery, land livestock
Consumable goods owned by the farmer

5 marks

(c) **cabbage production**

(i) Seedbed preparation

Land should prepared early during the dry season /land should be cleared
Land should be prepared to minimum tilth
Holes are dug at a depth of 10cm and spacing of 0.9x0.6m for large varieties and 0.6x0.6m for smaller varieties. (3x1) (3 marks)

(ii) transplanting of seedlings

- Nursery is first watered so that seedlings can be lifted with ease.
- Only healthy and vigorous seedlings should be selected.
- Lift the seedlings with a lump of soil attached to the roots
- Add about 15 gm/1 teaspoonful of phophatic fertilizer to the planting hole/mix with soil
- Firm the soil around the base of seedlings
- Water the seedlings as appropriate/if necessary
- Apply mulch around seedling/erect shade if necessary.
- Transplanting should be done on a cloudy day or late in the evening when it is not too hot.

7x1 7mks

(a) effects of pests on maize in the field

- Some pests transmit crop diseases e.g. leaf hoppers.
- Some pests eat the growing points causing retarded growth e.g. livestock, stalkborers
- Some pests attack the fruits lowering their quality andQuantity e.g birds
- Some pests eat the foliage/leaves reducing the surface area for photosynthesis.
- Some pests damage crop roots causing wilting and death to the plants e.g. termites
- Some pests pierce and suck sap from the plant depriving the plant of food
- Some pests injure and cause wounds on the plant exposing it to secondary infections

Procedure of harvesting pyrethrum

- Pick flowers selectively/
- Pick flowers with horizontal petals (ray flowers with 2-3 rowsof disc florets open
- Use the fore finger and the thumb

- Tick by twisting the heads so that no stem is left attached
- Put the picked flowers in woven basket. 4x1 (4mks)

Precautions during harvesting of pyrethrum.

- Picking starts after 3-4 months of planting to maintain quality
- Picked flowers are put in woven baskets to allow ventilation and avoid fermentation of flowers
- Wet flowers should not be picked because they heat up and ferment
- Picked flowers should, not be compacted to avoid heating up and fermenting .
- A suitable picking intervals maintained to avoid harvesting overblown flowers (3x1 3 marks

(c) cultural methods

- Contour farming: Cultivation and planting done across the slope helps in holding water thereby increasing infiltration and reducing runoff

- Mulching covers the soil thereby reducing splash erosion/reduce speed of runoff.
- Strip cropping alternating strips of crops that give good soil cover with those that give little soil cover controls movement of soil particles thereby helping in control of erosion.
- Vegetated_watarways: vegetation in waterways slows down run off/traps eroded soil particles Hereby preventing further erosion.
- Afforestation/reafforestation trees, protect soil from splash erosion by atomising - raindrops/encourage water infiltration/protect soil from winds, which could detach and remove soil particles,
- Inter-cropping crops which do not cover soil with crops that have good ground cover
- Minimum tillage so as to maintain good soil structure/have a seed bed with rough surface such that .soil particles are not easily detached encourage water percolation
- Cover cropping: establishing a crop that spreads over the surface of soil thereby protecting soil from effects of raindrops.
- Grass strips filter strips are left between cultivated/cropped strips of land to reduced speed of water and filter out eroded soil

(7 x 1) (7 marks)

(a) Biotic factors that influence crop production

- **Nitrogen fixing bacteria:** - convert atmospheric nitrogen to nitrates for plant uptake
- **Pollinators:-** transfer pollen grains from the anther of a flower to the stigma of the same flower or different flower.
- **Decomposers;-** organisms which breakdown organic plant and animal remains to release nutrients for plants/aerate the soil

- **Pests:-** Attack crops by eating plant parts, piercing and sucking sap and introduce/spread disease causing micro-organisms
- **Pathogens;-**they cause diseases
- **Predators;-**reduce pest population
- **Weeds;-**compete for nutrients/space/light/moisture/spread pests/suppress growth

(5 marks)

(b) Preparation of stem cutting

- Select shoots from mother plants that are high. yielding/healthy/well adapted
- Select healthy and vigorously growing shoots;
- That have grown unchecked for 6-months.
- Obtain cuttings from the middle part of the shoots,
- Using a sharp knife make cut close to the axial bud
- The cut should face away from the bud
- Put the cuttings in water before planting to prevent dehydration.
- The cut should have a single leaf bud
- Make a slanting cut
- The cuttings should be 2.5-4cm long

(c) Properties of N fertilizers

- Highly soluble in soil water therefore should be applied in an already established crop.
- Have short residual effect, thus should be applied frequently.
- They have a scorching scorching effect burning effect therefore should not come into contact with the plants.
- The fertilizers are hygroscopic/absorb moisture from atmosphere therefore it should be stored in dry conditions
- The fertilizers are corrosive therefore they should not be handled with bare hands/stored in easily corroded containers
- are easily leached therefore they should be applied to a vigorously growing crop/already established crop
- The fertilizers are Volatile therefore they should be applied on moist soils.

6x1 (6marks)

Agriculture 2011

pp2 marking schemes

1.Maintenance practices for a disc plough.

- cleaning after use
- painting the frame
- greasing the moving parts.
- repair/replace broken/worn out parts.
- metal parts on long storage.
- proper storage. (4 x ½ =2 marks)

2. Selection of breeding stock.

- Progeny testing.
- Mass selection.
- Contemporary comparison. (3 x ½ = 1 ½ marks)

3. Advantages of using animal power.

- Animals are cheap to acquire.
- Require less skilled labour.
- Can be used on,small holdings.
- Are appropriate in very steep areas. (4 x ½= 2 marks)

4. (a) Blue ticks - Anaplasmosis
   (b) Brown ear ticks - E.C.F,
   (c) Tsetse flies - Trypanosomiasis (nagana) (3x ½ =1 ½ marks

5. Control methods for roundworms.

- Use of antihelmintics
- Rotational grazing
- Proper disposal of faeces/hygiene
- Ploughing/burning of. -pasture. (4 x ½ =2 marks)

6. (a)Disease; Any deviation or alteration in the state of animal body or its organs which interferes with proper performance of its functions.

(b) Vaccination: Is the administration of a weakened or killed disease causing agent into the animal to induce production antibodies for immunity against the disease. (2 x1 =2 marks)

7. Maintenance practices for a battery.

- Topping with distilled water to maintain correct level of electrolyte.
- Cleaning the terminals and smearing them with grease to prevent corrosion.
- Tightly fix the battery in a box to prevent spillage and damages
- Regular charging.
- Empty contents and turn it upside down on long storage.
- Should be fitted correctly on the tractor. (3 x ½ = 1 ½ marks)

8.

	Breed	Type
(a)	Aberdeen	Beef
(b)	Guernsey	Dairy
(c)	Sahiwa	Dual purpose
(d)	Red poll	Dual purpose

4 x ½ =2 marks)

9. Proper nutrition
- Prevents nutrient deficiency diseases.
- Ensures resistance against disease infection. (2 x ½ = 1 mark

10.Categories of livestock disease;.
- **Bacterial**
- Protozoan
- Viral
- Nutritional (4 x ½ = 1 marks)

11.
- Upgrading
- Cross breeding. (2 x ½ =1 mark)

12. Bloodless castration methods.
- Use of rubber ring and elastrator.
- Use of burdizzo.

13. (a) Recessive gene; An allele whose phenotypic expression is masked by a dominant allele in heterozygous condition.

(b) Epistasis: Gene interaction in which the expression of some alleles is blocked (masked). 2 x 1 =2 marks)

14. Signs of kindling in a doe.
- Nest building
- Plucking of fur From the belly
- Lose of appetite.

• Restlessness. (4 x ½ = 2 marks)

15. Developmental stages of liver flukes in a fresh water snail.
- Sporocyst.
- Cercaria
- Redia. (2 x ½ = 1mark)

16. Four strokes of a tractor engine
- Induction
- Compression
- Power
- Exhaust (4 x ½ =2 marks)

17.Signs of mite attack in poultry,

- Irritation/scratching of the body.
- Anaemia,
- Presence of mites below the plumage in patches.
- Falling off of feathers.
- Dermatitis due to burrowing effects.
- Formation of crusts. (4 x ½ = 2 marks)

18.Advantages of natural feeding in calf rearing.
- Calf takes milk at body temperature,
- Milk is free from contamination
- it prevents scouring in calves.
- Milk is provided ad libitum. (3 x ½ = 1 ½ marks)

Section B (20 marks)

19

Rice - $^{20}/_{24}$ x 100 = 83.3 kg

Soya bean - 4/24 x 100 = 16.7 kg (8 x ½ = 4marks)

20. (a) Dromedary(*camelus dromedarius)*

(b)
- Milk
- Meat
- Transport services
- Hides

(c)
- Withstands/resists high temperature.
- Can slay for along time without food water.
- Can resist tropical diseases.
- Can survive on poor pastures.
- Can walk long distances in search of food and water. (2 x 1 marks)

21. (a)
J — watering can.
K— milk churn/milk can.
M — Mason's Trowel. (3 x ½ =1 ½ marks)

(b) K — temporary storage of milk/holding milk during transportation.
L — driving nails into wood/removing nails from wood. (2 x 1 =2 marks)

(c)
- cleaning after use.
- painting with aluminium paint to prevent rusting.
- repair/replace broken/worn out parts. (2 x ½ = 1 mark)

22. (a) Dry cow therapy. (1/2 mark)

(b) At the end of drying off. (1/2 mark)

(c)
- teal dipping
- complete milking
- proper milking technique
- applying milking jelly after (2 x 1 = 2marks)

23. (a) N - abomasum

P - Rumen

Q - Gall bladder (3 x ½ = 1 /$_2$marks)

(b.) S — Digestion/absorption of food

T-— Absorption of water. (2 x 1 = 2 marks)

(c) R— Lipase/Trypsin/amyIase

S — Peptidase/maltase/sacrase (invertase)/lactase. (2 x ½ = 1 mark)

SECTION C

24. Factors considered when culling livestock.
- Cull livestock of:
- Poor health;
- Old age;
- Physical deformities;
- Hereditary defects;
- Infertility;
- Poor mothering ability
- Poor quality pro duels;
- Low production;
- Bad temperament. (1 X 5 = 5 marks)

(b) Description of poultry management under:

(i) Cause of stress.
- Any sudden change in routine
- parasite infestations
- Lack of food and water
- Strangers and predators in the birds' house.
- Sudden noise such as passing tractors and thunder.
- Poor handling of birds during routine practices.
- Overcrowding which leads, to competition for space.
- Climatic changes
- Poor lighting in poultry house.
- Inadequate laying nests. (1x 8 = 8 marks)

(ii) control measures for cannibalism
- Control external parasites.
- Keep birds busy by hanging green leaves or vegetables in the house.
- Feed the birds on a balanced diet.
- Provide adequate floor space.

• Provide adequate laying nests.
• Provide dim lights in the brooder.
• Keep birds as per the age group.
• Debeak hens which peck others.
• Cull perpetual cannibals. (7 x 1 = 7 marks)

25. Feeding Dairy Calf
- Train the calf to Iced from a bucket (bucket feeding)
- Ensure the calf suckles the cow within the first eight hours to get colostrum.
- Feed the calf on colostrum for the far the first 4 days
- Introduce the feeding of whole milk or milk substitutes after, the fourth day
- Feed the calf 2 - 3 times per day for the-first-4 weeks.
- Feed the calf on the correct amount of milk up to weaning time.
- Provide adequate clean water from the third week,
- Feed the calf with warm milk at regular intervals.
- Introduce palatable, dry feeds such as concentrates (calf pellets) and good quality cut grass from the third week.
- Provide mineral supplements or licks.
- Any change in feeding should be done gradually to avioid nutritional disorders.

(10 x 1 =10marks)

(b) Newcastle disease. \

(i) • Casual organisms
• virus. (1 x 1 =1 mark)

(ii) Signs of attack:

• Difficult in breathing.
• Beaks remain wide open and necks are strained
• Dullness.
• Birds stand with eyes closed all the time.
• Loss of appetite.
• Nasal discharge which force the birds to shake their heads to clear it.
• Birds walk in a staggering motion since the nervous system is affected.
• Often the bird have their heads and wings drooping,
• Birds produce watery greenish diarrhoea.
• Eggs laid have soft shells. (1 x 7 = 7 marks)

(iii) Control Measures:
• Vaccination during the first six weeks and then two to three months later.
• Quarantine.
• Kill the infected birds and burn them.
• Obtain stock from reputable source. (1 x 2 = 2 marks)

26 . (a) Use of fences in the farm:

- Mark boundaries.
- Help to avoid boundary disputes
- Keep off wild animals and intruders from outside the farm.
- Enable the fanner to practice mixed farming.
- Facilitates rotational grazing
- Controls movement of animals and people preventing formation of unnecessary paths in the farm.
- Control the spread of parasites and diseases by keeping off wild and stray animals the farm.
- Help the farmer to isolate or confine animals requiring special attention.
- Enable the farmer to control breeding by rearing different animals in different paddocks.
- Hedges act as windbreakers.
- Adds beauty to the farm,
- Add value
- For privacy. (10 x 1 = 10 marks)

(b) Harmful effects of liver flukes in sheep

- Digestive upsets due to blocking of bile duct.
- Emaciation/recumbency lending to death
- Anaemia due to destruction-of-liver tissues
- Swollen lower jaw/Oedema in the jaws.
- Swollen abdomen. (5 x 1 = 5 marks)

(c) Differences between Petrol and Diesel Engine.

Diesel Engine	Petro Engine
- Uses diesel	- Uses petro
- Ignited by compression	- Ignited by spark plugs
- Compression ratio is high	- Compression ratio is low
- Less efficient in fuel burning	- More efficient in fuel burning

- Only air is compressed	- Air-fuel mixture is compressed
- Has injector pump	- Has acubator

(5 x 1 = 5 marks)