

ZIMBABWE SCHOOL EXAMINATIONS COUNCIL
General Certificate of Education Ordinary Level

MARKING SCHEME

NOVEMBER 2022

AGRICULTURE

4001/2

1. (a) *Job losses; 2 Loss of income;*
 lead to exploitation of some wildlife species;
 causes extinction of some natural resources;
 promote illegal trade of some natural resources; *Increase human/wildlife conflicts;*
 lead to loss of life for game rangers;
 increase cost of managing wildlife;
 loss of foreign currency;
 create imbalances in ecosystem; *loss of biodiversity;*
Indiscriminate harvesting;
 any 4 x 1 = [4] [4]
- (b) weather forecasting; *Evacuation;*
 disaster preparedness/mobilisation of resources;
~~maintenance of storm drains/waterways to improve drainage;~~ *cloud seeding;*
~~construction of fireguards;~~ *Growing drought tolerant/resistant crop varieties;*
 insuring farm enterprises; *construction of structures;*
Awareness/education;
 any 4 x 1 = [4] [4]
- (c) weeds build up;
 build up of pests/diseases; *soil become loose/destroys soil structure.*
 nutrients are utilised from same rooting zone;
No alternative if crop fails;
Increase in soil erosion;
 any 2 x 1 = [2] [2]
- 2 (a) conservation/minimum tillage; *Terraces*
 tied ridges; *cover cropping*
 potholing; *dry/winter ploughing*
 mulching; ~~green manuring;~~
 addition of organic matter; *marrowing/green manuring*
 contour ploughing;
Deep plough; strip cropping;
 any 4 x 1 = [4] [4]
- (b) application of organic matter;
 addition of agricultural lime;
 practising crop rotations;
 leaving soil fallow; *improve drainage.*
 planting grass leys;
 addition of anthill soil;
 any 4 x 1 = [4] [4]
- (c) *(nitrogen is 8%; 7%)*
 $78 \div 100 \times 300 \text{kg}$
 $= 24 \text{kg}; 21 \text{kg};$
 any 2 x 1 = [2] [2]
- 3 (a) explosion;
 animal/birds; *Contaminated seed/grain;*
 wind; *Organic fertilisers;*
 running water; *humans;*
 farm implements;
 vegetative means;
 any 4 x 1 = [4] [4]

thick leaves; curly leaves; sunken stomata;
3

- (b) thick waxy cuticle / oily leaves; reduced number of stomata; hairy leaves
narrow leaves to reduce the surface area;
fewer leaves; in fewer stomata for escape of water;
shedding leaves during dry periods such as winter; presence of thorns / spines;
closing stomata; more stomata on the underside
any $4 \times 1 = [4]$ [4]

- (c) ~~increase~~ affect cost of production; reduced market value;
lower yields; death of plants; started growth;
~~Reduce~~ affect quality of produce;
may lead to total crop failure;
any $2 \times 1 = [2]$ [2]

4.

- (a) improved fertility; high production of products
disease resistance; high parasite tolerance
increased production / milk / wool / meat / skin;
high growth rate;
new breeds produced / genetic variation;
high feed conversion ratio;
improved animal size;
improved adaptability to harsh conditions
Any $4 \times 1 = 4$ [4]

- (b) Rabbits
- weighing; sexing
- breeding;
- record keeping; feeding; disease control
- pest / disease control;
- supply clean water; identification
- hutch cleaning / hygiene;
- balanced diet;
- hygiene; wearing; provision of warmth

- Layers/indigenous chickens
vaccinating / disease control; provision of nest boxes
- supply clean water;
- record keeping;
- balanced diet; vaccinating
- hygiene; egg cleaning
- changing bedding; provision of patches
- egg collection; provision of warmth
- inspection for healthy;
- grading eggs;
Any $4 \times 1 = 4$ [4]

(c) $\frac{3}{100} \times 500 = 15$ kg / day

$15 \text{ kg} \times 14 = 210 \text{ kg / fortnight}$

Any $2 \times 1 = 2$ [2]

5. (a) mould board plough;
cultivator;
ridger;
harrow; *planter*

4

any 4 x 1 = [4] [4]

(b) deeper cut;
unscrew/loosen bolts on the clamp; ~~loosen bolts~~
pull wheel arms upwards;
loosen bolts on hitch assembly;
move the depth control rods upwards; *tighter bolts*

shallower cut;
unscrew/loosen bolts on the clamp;
press the wheel arms downwards;
unscrew bolts on the hitch assembly;
press the depth control rod down;

any 4 x 1 = [4] [4]

(c) controlling weeds;
loosen soil;
earthing crops;
Covering fertilizer/seed;

any 2 x 1 = [2][2]

6. (a) *Print media*
- Magazines; Newspapers; Banks; Marketing Boards; Input suppliers; Friends/
neighbouring farmers; Internet; Farm records; Markets; Government; *farmer;*
organisations; *Agric shows;* *electronic media;* *universities/colleges;*

(b) *board*
Controlled
- *offer to ~~buy~~ product; control named products*
- Marketing of specific goods are controlled by the Government / Marketing Boards;
- Prices determined by the Government / Marketing Boards;
- *Marketing board sole buyer*
Uncontrolled

- Farmer sell to a market of his / her choice;
- Farmer determine prices of his / her goods;
- Price negotiable;

[4]

c) *Physical/production;*
Financial

[2]

7. (a) mulching; *Accept correctly given reasons for measures*
adding organic manure; *reject ridges ~~alone~~.*
cultivating the soil to allow water infiltration;
cover cropping; *minimum tillage/conservation*
intercropping; *Contour ridges/storm drains*
optimum plant population;
~~working on a soil with judicious amount of water;~~
allowing a ley period;
crop rotation;
terracing; early planting;
water ways;
Contour ploughing; wind breaks;

any 8 x 1 = [8] [8]

No crop name, no mark

Wrongly named ⁵ crop no mark

- (b) field beans/soya beans/groundnuts; *Reject beans done*
place seed on a clean surface;
mix inoculant with water; *rhizobia/adhesive*
add ~~sugar~~ to the mixture; *sugar/milk/molasses to the mixture;*
sprinkle mixture on seed;
thoroughly mix seed with inoculant; *rhiobium/ soil from previous crop*
avoid direct sunlight;
plant immediately; *in moist soil;*
mixing inoculant in to the ^{seed} furrow any 7 x 1 = [7] [7]

- (c) distance to the market; *Storage;*
price fluctuations; *seasonality;*
perishability; *security;*
transport; *Market demand*
accessibility of markets;
competition;
gluts;

any 5 x 1 = [5] [5]

8.

- (a) effective use of land/maximum utilisation of land; *Land reclamation*
enables diversification;
increase water infiltration; *timber;*
increase land productivity;
trees benefit from the fertiliser applied to crops; *fuel;*
high returns;
higher yield of honey for apiculture; *medicine;*
provide shade for humans and livestock; *Control winds; enhance soil conservation*
increase soil fertility; *belts;*
trees planted act as wind breaks; *shelter better; preventing soil erosion*
trees in some systems serve as live fences;
brings aesthetic value to the land; *animal habitat*
forests act as carbon sink; *provision of food*
increased labour efficiency; *reduces pests; and diseases;* any 8 x 1 = [8] [8]

- (b) fire guard; *Construction;* Accept correct reasons for operation
pest/disease control;
irrigation/watering; ~~Control irrigation~~
fertilising/top dressing;
pruning;
basin maintenance; *gap filling; record keeping; mulching;*
weed control; *forcing; training;*
cutting grass between rows; any 7 x 1 = [7] [7]

- (c) difficult in tall crops;
cause physical damage to crops;
destroys soil structure;
some weeds are not effectively controlled/couch grass;
time consuming;
laborious;

any 5 x 1 = [5] [5]

9. (a) ~~No~~ Name ~~or wrongly~~ named vegetable crop 1 X 1 = 1

- Cauliflower / Cabbage / Rape / ~~Carrot~~ / spinach / lettuce / ~~potato~~ / broccoli
- Top dressing; Kale
- Ammonium Nitrate; mustard
- Record keeping;
- Irrigation / Watering; shading; cultivation; gap filling;
- Weed control;
- Scouting; mulching;

~~Contd.~~ Pest / disease control;
 - Accept correct reasons for operation.
 Any ~~8~~ ⁷ [8]
 7 X 1 = 7

- (b) (i) - Temperature;
 affects - Hastens / Quickens ripening of fruit crops;
 - Assists in photosynthesis;
 - Influence enzyme activity;
 - Assists in germination; Affects respiration
 - Improves soil microbial activities;
 - Plant growth; affects transpiration

Any 4 x 1 [4]

- (ii) - Rainfall;
 - Assists in germination; Affects photosynthesis
 - Cooling the plant;
 - Dissolves nutrients;
 - Keeps the plant cell turgid;

Any 3 x 1 [3]

(c) ~~No name or wrongly~~ named ~~fruit~~ vegetable ~~no mark~~
 ~~root~~
 Grading;
 ~~Clearing;~~ Clearing;
 Weighing;
 Bandling / putting in bundles; Labelling / branding
 Advertising;
 Transportation;
 Carrot / beetroot / turnips / radish
 Any 1 x 1 = 1
 Any 4 x 1 [4]

10. (a) name of female non-ruminant-sow/jenny; Pig / Sow / jenny / gilt /
 boar; stallion used donkey 1 X 1 = 1

- farrowing/parturition date;
- treatment;
- litter number/foul number; foal
- number farrowed; vaccination programme
- amount of feed;
- weaning date;
- weaning mass; birth mass; type of feed
- number weaned;
 any 7 x 1 = 7 [7]
- ~~mass/weight;~~

~~No name/wrongly~~ named ~~no mark~~
 ~~1 X 1 = 1~~

- (b) high yielders; *high quality products; high meat-to-bone ratio;*
 fast growing;
 high feed conversion ratio;
 high conception rate; *quick financial returns;*
 high fertility;
 large in size;
 high calf birth mass;
 easy calving ability;

any 7 x 1 = [7] [7]

- (c) ensures a disease free environment/prevent disease;
 prevent spread of diseases in stock;
 prevent loss of animal stock;
 prevent cross contamination of animal diseases;
 increase the farmers earning/profitability;
 increase animal growth;
 animals express their full genetic potential;

any 5 x 1 = [5] [5]

11.

(a)

- (i) *fowl pox / pox name / wrongly named disease no mark*
 Newcastle *epidemic tremor;*
 virus; *paramyxovirus*

1x1=[1] [1]

- (ii) difficulty breathing;
 yellowish diarrhoea;
~~dropping~~ wings; *dropping*
 twisting neck;
 coughing/sneezing/mucous;
 sudden reduction in egg production;
 high death rate;
~~notifiable disease;~~ *paralysis;*

any ³~~4~~ x 1 = ³~~4~~ [4] [4]

- (iii) vaccinate the flock; *report to responsible authority;*
 New castle vaccine;
 good hygiene practices; *burn and bury carcass*
 quarantine/isolate affected birds; *kill/destroy the whole flock*
 exclude wild animals/birds;
 no treatment;

any 3 x 1 = [3] [3]

- (b) body cooling;
 chemical reactions;
 excretion of waste;
 aids in digestion;
 acts as a lubricant in the body;
 dissolves nutrients;
 transport nutrients;
 component of blood;

any 7 x 1 = [7] [7]

- (c) reach slaughter weight *faster*; high weaning weight;
 reduce stress on mother; *early mating*; minimises the loss of sow body mass;
 creep feed prepare the young for growers;
 reduce upset in the digestive system;
 reduces post weaning scours/diarrhoea *stress*;
 reduce feeding cost *less expenses*

any 5x1=[5] [5]

12.

- (a) *No name/wrongly named parasite No mark*

anaemia;
 irritation;
 loss of body condition/emaciation;
 transmission of diseases;
 damage of hides/skins;
 reduces animal fertility;
~~increase cost of production~~;
 dull/rough coat; *reduced production*
 cause wounds; *death*; *reduced growth rate*
 damage teats;

*Parasite: Tick/Lice/
 Tannans/mite/flea/
 Tsetsefly; 1x1=1*

7 7
 any 8 x 1 = ~~8~~ [8] [8]

- (b) (i) weight loss in mature animals/emaciation/muscle wasting;
~~low egg production~~ *low milk production* / *Egg production*
 retarded growth rate;
~~poor egg laying rate~~ *reduced litter size*;
 death of animal; *reduced fertility* / *conception rate*;
 any 4x1=[4] [4]

(ii) $1.5 \text{ kg} \times 0.25$ $1.5 = 100\%$
 $1.5 \times 25 \div 100$ $PR = 125\%$
 0.375 kg;
 $0.375 + 1.5 \text{ kg}$ $\frac{125}{100} \times 1.5 \text{ kg}$
 = 1.875 kg;
 = 1.875 kg

any 3 x 1 = [3] [3]

- (c) ambient temperature;
 water temperature; *size of animal*;
 age of animal;
 health of animal; *level of production*;
 amount of salt in the diet;
 activity of the animal; *type of feed*;
quality of water;

any 5 x 1 = [5] [5]