EXAMINATIONS COUNCIL OF ESWATINI
Eswatini General Certificate of Secondary Education

AGRUCULTURE **6882/02**

Paper 2 **October/November 2020**

Confidential

MARK SCHEME

{6882/02}

MARKS: 80

Section A

1 (a) (i) radicle **[1]**

(ii) provide food/ nutrients/ energy for growth **[1]**

(b) (i) water/ adequate moisture; warmth/ suitable temperature; air/ oxygen; viable seed **... any two** **[2]**

(ii) dry cool conditions **[1]**

(c) humid air slows the rate of transpiration; which in turn slows growth rate of seedlings **[2]**

1 mark for idea 1 mark for explanation

(d) oxydation of carbohydrates to release energy/ $CH_2O + O_2 \rightarrow$ energy + $CO_2 + H_2o$ **[2]**

(e) ground cover/ unloosened soil conseerves moisture; reduces soil erosion; reduces costs; enhance microbial activity **... any two** **[2]**

[11marks]

2 (a) (i) E4 per head **[1]**

(i) hydroponics **[1]**

(b) cost of sterilising the soil; certification; inspection/ quality control; higher labour costs to control weeds/ pests by cultural methods **[3]**

(c) less water wastage; reduced/ controlled soil diseases; water/ nutrients supplied at the same time; no leaching; no soil erosion; high yields; easy to control nutrients/ no wastage of nutrients **[2]**

(d) monocropping; nutrients/ basic cations used without replacement/ overuse of chemical fertilisers

OR

organic farming; continuous nitrification **[2]**

[9 marks]

3 (a) 0.135 kg – **1 mark for working; 1 mark for answer** **[2]**

(b) if less, not all pests are killed/ survivors build resistence; if more,chemical scorches the crop/ wastage **[2]**

(c) alternate crops are not attacked by same pests; to break lifecycle of pests **[2]**

(d) prevents pollution; no spray drift/ avoids killing untargeted organisms **[2]**

(e) avoid disposing in streams; burn after consultation with SEA **[2]**

[10 marks]

4 (a) (i) amino acids **[1]**

(ii) lipase **[1]**

(b) anaemia; tired and weak animals; pale eyelids and moutaches; unstable walk **[2]**

(c) emulsify fats; neutralises the acid mixture from the stomach; creates alakaline conditions for enzyme trypsin/ for activation of protein based enzymes **... any two** **[2]**

(d) break down cellulose; convert plant protein to microbial protein; converts non-protein nitrogen (e.g. urea) to microbial protein; converts fats/ oils eaten by animal into fatty acids/ glycerol **[2]**

(e) rotational grazing; burning; drainage **... any two** **[2]**

[10 marks]

5 (a) (i) prepare uterus for implantation/ stop release of egg during pregnancy/ development of udder/ maintains pregnancy **[1]**

(ii) regulates oestrus cycle; helps oviduct and uterus to carryout their functions; helps in development of female sexual characteristics **[1]**

(b) (i) parents genotype: **RR X rr ... ECF**

gametes: **R R r r**

F1 genotype**: All Rr**

F1 phenotype: **All high resistant**

parents genotype = 1; gametes = 1; genotype = 1; phenotype = 1 **[4]**

(ii) selection is based on observable characteristics/ appearance/ physical features **[1]**

(c) cross-breeding the Nguni cow with a milk breed bull (Friesian/ Jersey); select cows from offsprings; repeat crossing with the milk breed bull over many generations **[3]**

[10 marks]

6 (a) water contamination/ roof corrosion; impurities **[1]**

(b) high evaporation rate/ water wastage; uneven water application; cost of equipment; difficulty of setting up equipment over crops **... any two** **[2]**

(c) (i) prevent **wave** erosion

(ii) impervious clay soil/ plastic sheeting

(iii) prevents flooding **[3]**

(d) (i) painting/ galvanising **[1]**

(ii) protects fields from stray livestock; facilitates rotational grazing; facilitates controlled breeding; mark out boundaries/ prevents boundary disputes; act as windbreaks **... any three** **[3]**

[10 marks]

Section B

7 (a) primary cultivation/ tillage/ digging (hoe, spade, plough); secondary cultivation/ soil tilth/ levelling (fork, rake, disc, harrow); adding organic matter/ lime **[3]**

(b) reduce yields; lowers quality of produce **[2]**

(c) high risk of crop failure; rise in temperatures; chang in timing and length of growing season; decline in crop diversity and production; increased soil erosion; drought; introduction of new pests **[5]**

[10 marks]

8 (a) environmental factors such as climate and soil conditions; production factors/ available resources; technological factors such as use of improved breeds/ varieties; human rsource facors such as technical skills and training; management factors **[4]**

(b) availabilityof food; production of sufficient food; access to food /less hunger; good nutrition/ proper diet **[3]**

(c) high yielding varieties/ breeds/ genetically modified organisms; disease resistence/ drought resistence; early maturing; best planting dates; better machinery/ tools/ equipment; better farming methods/ pest and disease control; high nutritious animal feeds ..**any three** **[3]**

[10 marks]

9 (a) diseases resistence/ adaptation; vaccination programme/ disease prevention done **[2]**

(b) blood; watery droppings; have eggs/ cysts/ larva of parasites **[3]**

(c) clean and disinfect house and equipment; place wooden board in cages; provide a footbath; change litter weekly; provide fresh clean water; ansure feed bins are rat proof **[5]**

[10 marks]