



AGRICULTURE

6882/02

Paper 2

Specimen 2021
1 hour 30 minutes

Confidential

MARK SCHEME

{6882/02}

MARKS: 80

This paper consists of 4 printed pages.

Section A

1. (a) Hypogeal; [1]
 (b) A= radical, B= plumule ; [2]
 (c) Stores photosynthates/; food; provides developing embryo with food; [2]
 (d) Germination rate decreases/less viable/expire; pest/mould attack; low yield; [2]
 (e) Less moisture/air (oxygen)/suitable temperature; soil capping; planting depth; soil borne diseases; [3]
 [10 Marks]

2. (a) (i) X= nitrosomonas; Y= nitrobacter; [2]
 (ii) Fix atmospheric nitrogen (into soil) [1]
 (b) Yellowing or chlorosis of leaves; stunted growth; leaf drop off prematurely; [2]
 (c) drainage/leaching; volatilisation; excessive cultivation; usage by microbes/plants; [2]
 (d) Cations/elements/minerals drained down soil profile with water; increased amount of H⁺ ions; increase soil acidity; soil structure damaged; [3]
 [10 Marks]

3. (a) (i) Genetic makeup of an organism; [1]
 (ii) Outward/physical appearance; observable characteristics; [1]
 (b) (i) Homozygous/purebred yellow crossed with homozygous/purebred white; all Aa; in heterozygous offspring, dominant allele always present/expressed; [2]
 (ii) Aa x Aa;

	A	a;
A	AA homozygous yellow	Aa heterozygous/hybrid yellow
a	Aa heterozygous/hybrid yellow	aa; homozygous white;

[4]

- 1 for correct parental genotypes
 1 for correct gamete genotypes
 1 for correct F₂ genotypes (in punnet square or other diagram)
 1 for correct F₂ phenotypes (in punnet square or using key)

- (iii) Genotypic ratio= **1AA: 2Aa: 1aa**; Phenotypic ratio: 3 yellow: 1 white; [2]
 [10 marks]

4. (a) (i) Duodenum [1]
(ii) Absorption [1]
(iii) pepsin; rennin [2]
(b) Breaks down cellulose; die and provides nutrients; [2]
(c) Carrying capacity refers to potential of a pasture to sustain a lsu;
stocking rate is the number livestock in a pasture on certain period over
a given area; [2]
(d) Easy monitoring/management; saves space; fast growth rate; high yield; [2]
[10 marks]
5. (a) Multiplies quickly/reproduces fast;destroy other vegetation [1]
(b) Reduces crop/pasture yields; destroys water sources; hinders movement;
destroys pastures/takes up space; expensive to control (government
attention); water shortages/drought; [2]
(c) Goats/cattle feed on leaves, insect feeding on plant [1]
(d) Expensive/increase costs of production; pollution/spray drift; requires
technical know-how; harms useful organisms/ecosystem; [3]
(e) Chemical absorbed into plant system/sap; translocated along phloem;
kills weed [3]
[10 marks]
6. (a) (i) 80% [1]
(ii) Month 1/first month [1]
(b) minimum evaporation in drip whilst high temperatures leading to higher
evaporation rates for sprinkler; water applied directly to root zone/soil in drip
irrigation; [2]
(c) Minimum tillage; mulching; shading; using drip irrigation; [2]
(d) (i) Collects/harvest water to storage area; [1]
(ii) Borehole; construct a dam; storage tanks; water pumps; pipe
system [3]
[10 marks]

Section B

7. (a) Determine quantity demand/market size; prices/income groups; preferences/tastes, competitors, decision making about enterprises; [3]
- (b) Magazines, pamphlets, billboards, newspaper, radio, TV; [3]
- (c) selecting best enterprise among alternatives; chosen alternative achieve highest economic returns/yield/benefit/less cost of production; decision making; combining enterprises for optimum benefit; [4]
- [10 marks]
8. (a) Provides new information; solves existing problems/ obtain new methods of production; introducing new technology; [2]
- (b) Cooperatives (funding, etc); sustenance of agricultural production; household food production; craft; [4]
- (c) Control diseases- quarantine, movement control, import control, dipping; [4]
- [10 marks]
9. (a) Pollen blown by wind from tassels/anthers to silks/styles; [2]
- (b) Plenty pollen; light pollen; overhanging hairy silks/styles to trap pollen; [4]
- (c) Elimination of seed dormancy; breed true to type; hardy/easily adaptable to environmental condition; quickly matures; planting material readily available/cheap; may promote resistance to disease; [4]
- [10 marks]