

Environmental and Land Based Science

General Certificate of Secondary Education

Unit **B491/01** Plant Cultivation (Foundation Tier)

Mark Scheme for January 2011

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All Examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

Mark schemes should be read in conjunction with the published question papers and the Report on the Examination.

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Abbreviations, annotations and conventions used in the detailed Mark Scheme.

/	=	alternative and acceptable answers for the same marking point
(1)	=	separates marking points
allow	=	answers that can be accepted
not	=	answers which are not worthy of credit
reject	=	answers which are not worthy of credit
ignore	=	statements which are irrelevant
()	=	words which are not essential to gain credit
—	=	underlined words must be present in answer to score a mark (although not correctly spelt unless otherwise stated)
ecf	=	error carried forward
AW	=	alternative wording
ora	=	or reverse argument

Question	Answer	Marks	Guidance
1	B: Caterpillars;	[1]	
2	D: The gene for yellow seeds is stronger than the gene for green seeds;	[1]	
3	C: Onion;	[1]	
4	C: It grows underground	[1]	
5	boom sprayer; Harrow; Plough;	[2]	Two marks for all three correct; One mark for one correct
6	D: P;	[1]	
7	C: Ventilation increases O ₂ for photosynthesis;	[1]	
8	Place an S on the style; place a P on the petal;	[2]	
9	Two from: Water them correctly; add fertiliser/feed; place them in a sunny/light spot; spray with pesticide; repot them	[2]	Responses must refer to how to improve the appearance of the plant and not what caused the symptoms
10	(Sensor) sends data/signals to the computer; If soil is too dry, computer turns sprinklers on/If soil is too wet, computer turns sprinklers off;	[2]	Allow answers relating to soil conductivity; Candidates must refer to how the computer rectifies the situation eg. how the water is added
11	Water; warmth; oxygen; light/dark;	[2]	Two marks for three correct responses, one mark for two correct, no marks for only one correct response.

Question	Answer	Marks	Guidance
12	No PPE used; children/animals near the pellets; Sarah is bending her back	[2]	All responses must relate to the scenario and how it is hazardous Not reference to inhaling the pellets
13 a	One from: Organic slow release/ inorganic quick release; Inorganic contain higher levels of NPK/nutrients;	[1]	Reject: if candidates just copy from the table and state quicker Allow: the fertiliser works quicker/slower Candidates need to include a comparison although the terms organic/inorganic are not specifically needed
b	Growmore;	[1]	
c	Chicken Manure; Contains the highest levels/equal amounts of NPK of all the organic fertilizers;	[2]	
14	7.5%;	[1]	
15 a	Transport;	[1]	
b	12;	[1]	
16	Two of: levelling the soil; producing a good tilth/seed bed (soil structure); removing stones;	[2]	Reject: remove weeds but allow reference to removing plant debris as long as it is clear that it has already been dug up Not aerates the soil Allow: to break up the soil/lumps Allow: prepare the ground for sowing
17	Dry - to prevent mould/bacteria; Sealed - to prevent pests/named pest; Waterproof - to keep rain out; Metal - to make it strong; High - so easy management/suitable example;	[3]	One mark for each feature up to 2 marks and the third mark must be for each a reason Not any reference to the size/shape or position of the structure. Allow: dark Allow: cool but not cold
18	Pollen is transferred from the anther; To the stigma; By wind/insect;	[3]	Allow: low level reference to insects such as bugs/flies
19	Three of: use (potting) compost; in a (seed) tray; firm compost; sprinkle seeds thinly/place seeds in a hole; cover seeds; water; place in a greenhouse/warm conditions; label;	[3]	Reject: soil Allow: reference to covering seeds with soil in order to prevent double penalising candidates Not placing in a light area If students are planting seeds outside allow answers relating to seed sowing and watering
	Total	[36]	

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