

## SPECIMEN MARK SCHEME

### UNIT 7 - SUSTAINABLE MANAGEMENT AND DEVELOPMENT OF RESOURCES



### Level 3 Unit 7(ELS3U7) Specimen Mark Scheme

Instructions: ; = 1 mark / = alternative response A = accept R = reject

#### Question 1

Statement;  
Explanation;

The types of argument need not be named/or identified

eg

Waste the earth's resources/oil  
alternatives are available

blight the lives of other people (accept example)  
responsibility for appropriate disposal

packaging has a short useful life  
no need for long lasting material

waste of money  
cheaply made/other resources/recyclables

diverts more economical use of oil  
oil non-renewable/finite

expensive disposal problem  
disposal outweighs production costs

irresponsible disposal creates (long-lasting) eyesores  
non-biodegradable/not easily recycled by environmental processes

landfill a waste of a land/finite resource  
disposal by burning generates a toxic hazard

plastic ingested by animals/traps animals/destroys habitats  
loss of biodiversity

MAX 6

**Total marks = 6**

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**Question 2**

- 2 (a) Bogs will continue to store carbon/net gain in carbon;  
storage rather than net loss;  
variety and number of peat bog species maintained; 2
- 2 (b) The quantity of carbon/carbon dioxide store in plants/organic  
compounds;  
through photosynthesis;  
is equal to the quantity of carbon release by burning fossil fuels/carbon  
compound from plants; 3
- 2 (c) Peat extraction for commercial reason;  
water extraction lowers the water table causing drying out;  
burning off reduces carbon content/adds to carbon dioxide in air;  
grazing removes carbon/peat as animal food is respired to carbon dioxide;  
agrochemical (named) pollution kills plants and which decompose;  
emitting carbon as carbon dioxide/methane; MAX 2
- 2 (d) The government pays farmers for good environmental management/  
sustainable practices on their land; 1
- 2 (e) Plant crops/do not leave soil bare;  
use organic waste as fertiliser/do not use manufactured fertiliser;  
use biological control/do not use manufactured pesticides;  
restore hedgerows/coppices/woodland;  
reduce use of fossil fuel;  
use wind power/bio-digester for methane;  
keep water table high so that peat does not dry out; 2

**Total marks = 10**

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**Question 3**

- 3 (a) Role of factor ; ; ; ;  
Evaluation ; ; ; ;

eg

tree cover absorbs worst effects of torrential rain (owtte)  
prevents run-off/soil erosion/oxidation of humus

loss of dead organic matter  
breakdown of soil structure

leaf litter from trees  
acts as mulch to reduce heating of soil/water loss

tree cover maintains humidity/slows water cycle  
reduces the need for mechanised irrigation

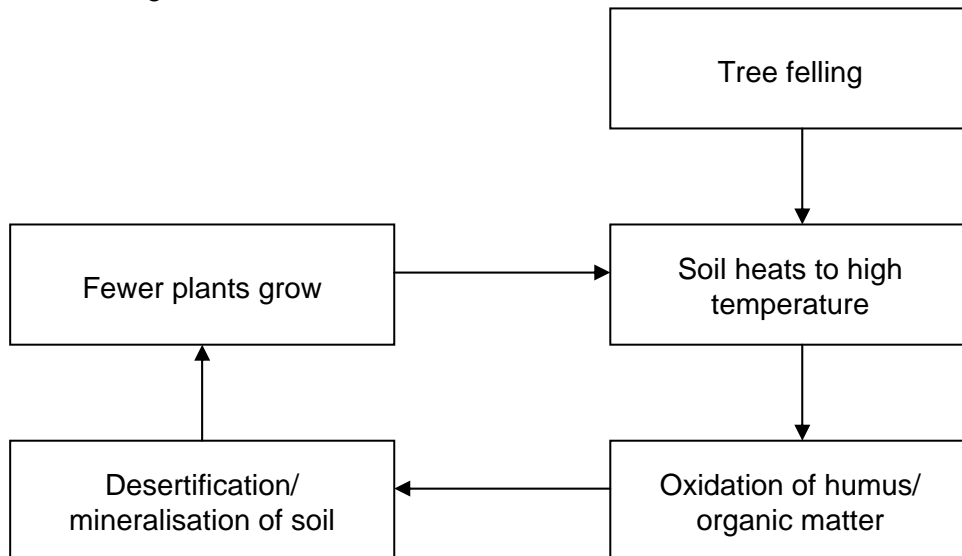
natural cycling of water is slower  
reduces the rate of nutrient losses through leaching

recycling of organic matter in soil  
slow/prevents speed of desertification/mineralisation

8

- 3 (b)

eg



4

**3 (c)** Any **five**: must have **reason** for award of mark

replant trees/shade crops  
to prevent soil baking/humus oxidation;

import humus/compost  
for slower nutrient cycling/water retention/fertility;

stop use of artificial fertilisers  
to reduce mineralisation;

stop spray irrigation  
to slow nutrient losses/leaching;

plant nitrogen fixers  
to increase level of nitrogen in soil;

fill bore-hole  
stop it acting as sink/raises water table;

MAX 5

**Total marks = 17**

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**Question 4**

**4 (a)** Value to society of Dorset Downs by reference to:

landscape beauty;  
 historical interest;  
 variety of land use;  
 amenity;  
 range of habitats;  
 biodiversity;

(max 3)

Purpose of biodiversity conservation in the Dorset Downs by reference to:

maintenance of the food web/chains/ecology of the area;  
 protection of endangered species;  
 protection of the gene pool of rarer species;  
 protection of the habitats which support biodiversity;  
 raising the intrinsic value/increasing conservation value of the area;  
 restricting the use of unsustainable land management practices  
 in the area;

(max 3)

MAX 6

**4 (b)** Provide countryside interpretation information;  
 guided walks/study trails;  
 specialist study days eg fungi forages/badger watching;  
 specialist land management courses eg hedge-laying/pond creation;  
 encourage volunteering;  
 wildlife/landscape photography competitions;  
 schools visits/fieldwork days;  
 wildlife gardening campaigns;  
 consultation for lobbying purposes/campaigns;  
 assistance with wildlife surveys;  
 farm open days;

MAX 3

**4 (c) (i)** Population's/urban area's demand for water will increase so less for habitats;  
 increased metering will reduce consumption so increase in water available for habitats/wetland creation;

2

**4 (c) (ii)** Increases in oil/fuel prices grid/energy supply structures;  
 switch to renewable energy supplies/turbines/biofuels;

2

**Total marks = 13**

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**Question 5**

- 5 (a) (i) Suitable named pollutant;  
method(s) of reducing risk;;  
eg  
Use of biodegradable detergents to reduce phosphate pollution  
use of slow release organic fertilisers instead of NPK salts  
use of biological pest control instead of insecticides  
use of biodegradable cleaning products
- Suitable water treatment process(es);;  
explanatory detail;;;  
eg  
Screening  
large floating debris  
interference with operation
- OR**  
metal salts added  
coagulation/flocculation  
fine particles removed
- OR**  
sedimentation  
in still water  
solids settle
- OR**  
flotation/gas bubbles  
increase buoyancy of suspended solids  
surface layer removed
- OR**  
carbon filtration  
removal of fine material/strained  
chemicals adsorbed
- OR**  
phytoremediation/reed beds  
bacterial  
decomposition
- OR**  
alkali/lime added  
particles aggregate/clump  
become insoluble  
metal salts precipitate
- OR**  
disinfection  
removal of pathogens  
using UV/ozone/chlorine
- OR**  
membrane filtration  
finest particles removed  
by synthetic membrane



**Question 6**

- 6 (a)** Sustainable resource management:  
Aim (linked to an outcome);;  
Outcomes;;

eg

<b>Aim</b>	<b>Outcome</b>
Waste collection from homes requires households to separate recyclable materials	which reduces demand on energy and finite material resources
Recycling and composting centres encourages people to reduce waste in the bins ('slim your bin')	which reduces collection frequencies/fuel demand
Composting centres may sell products as 'peat free' and therefore	reduce demand on natural resource

MAX 4

Environmental protection:  
Aim (linked to an outcome);;  
Outcomes;;

eg

<b>Aim</b>	<b>Outcome</b>
Provision of sites for public to dispose of waste	reduces eyesore/health hazards associated with risk of fly-tipping
Safe disposal of hazardous/toxic waste	reduces risk of dumping in concentrated amounts in rivers/farmland
Provision of composting	reduces the risks associated with organic waste in cities – rats/flies/feral pigeons

MAX 4

MAX 8

- 6 (b)** Reduces landfill/saves land for other purposes;  
generates electricity so save on finite fuel resources;  
emits only steam so does not contribute to air pollution;  
recovers metal so reduces mining of finite resources;  
produces ash as construction material so reduces need for mining of materials for construction; 5
- 6 (c)** Creates positive/reassuring image/confidence in sustainability of city;  
because of clear skies/nearby lake supporting wildlife; 2

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- 6 (d) Schools encouraged to visit recycling centres;  
environmental competitions in local press;  
offer voucher systems/financial incentives to exchange old for new eg TVs and fridges;  
offer free composting bins;  
gardening/recycling events to demonstrate use of recycled products;  
run litter awareness days/events as part of national campaign; MAX 3

**Total marks = 18**

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### Question 7

- 7 (a) Provides amenity for passive recreation for general public;  
provides opportunities for enthusiastic amateurs to do real conservation work;  
enhances the feeling of well-being to have good quality habitat in the locality/  
sharing locality with wild plants and animals;  
provides educational opportunities for seeing/understanding biodiversity;  
protects part of local areas from 'development'; MAX 5
- 7 (b) Maintain biodiversity in local habitats;  
encourage public/non-science community to be actively involved in wildlife conservation;  
to maintain sites which are not marked for conservation because they have little/  
no legislative protection;  
to involve all ages and abilities in the work of the organisation;  
to offer free expert training in wildlife management; MAX 3
- 7 (c) Build ponds;  
plant native hedgerows and shrubs;  
compost heaps;  
log piles;  
rock piles;  
nectar flowers;  
bird tables and feeders;  
bird/bat boxes;  
caterpillar food plants;  
don't use chemicals; MAX 3

**Total marks = 11**

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## Assessment Grid ELS3U7

Question Number	Learning Outcome												
	1a	1b	2a	2b	3a	3b	4a	4b	4c	4d	5a	5b	5c
1	6												
2a			2										
2b				3									
2c		2											
2d					1								
2e							2						
3a		4	4										
3b							4						
3c		2									3		
4a				3					3				
4b					3								
4ci										2			
4cii										2			
5ai					5								
5aii		3											
5b					3		4						
6a											8		
6b					5								
6c						2							
6d													3
7a			5										
7b				3									
7c												3	
Sub-total	6	11	11	9	17	2	10	-	3	4	11	3	3
Actual Total	17		20		19		17			17			
Target Total	18		18		18		18			18			