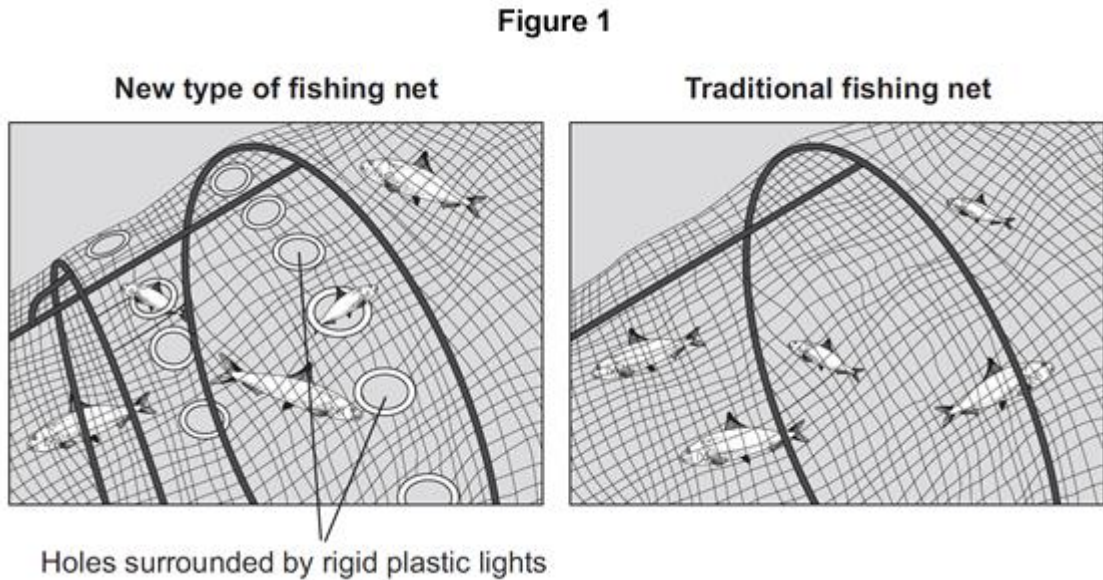


B18- Biodiversity and ecosystems- Exam Practice 2

Q1.

It is important to conserve fish stocks.

Figure 1 shows a new type of fishing net and a traditional fishing net.



- (a) (i) Describe how the new type of fishing net helps to conserve fish stocks.

(3)

- (ii) Give **one** way, other than controlling nets, to reduce overfishing.

(1)

- (b) Another way to make sure there is food for an increasing human population is to make food production more efficient.

Figure 2 shows how some cows are farmed.

Figure 2



© Dageldog/iStock

- (i) Use information from **Figure 2** to suggest **two** ways in which this type of farming reduces energy loss from the cows.

1. _____

2. _____

(2)

- (ii) Give **two** reasons why some people disagree with farming cows in this way.

1. _____

2. _____

(2)

(Total 8 marks)

Q2.

The number of fish in the oceans is decreasing.

The table below shows information about the mass of fish caught by UK fishermen between 2002 and 2010.

Year	Mass of fish caught by UK fishermen from ALL SOURCES	Mass of fish caught by UK fishermen from SUSTAINABLE	Percentage of fish caught from sustainable
------	--	--	--

	in thousands of tonnes	SOURCES in thousands of tonnes	sources
2002	690.0	427.8	62.0
2004	655.0	396.6	60.5
2006	619.0	386.0	62.4
2008	589.0	436.1	74.0
2010	611.5	465.0	

- (a) (i) Calculate the percentage of fish caught from sustainable sources in 2010.

_____ %

(2)

- (ii) Describe the pattern in the table above for the mass of fish caught from all sources.

Suggest reasons for this pattern.

(4)

- (iii) Suggest why the percentage of fish caught from sustainable sources is increasing.

(1)

Combined Higher Questions

Q3.

In many areas of the world the mass of household waste produced each year is increasing.

- (a) Give **two** reasons why the mass of household waste is increasing each year.

1. _____

2. _____

(2)

- (b) The table below shows how the mass of household waste in the UK has changed from 2004 to 2012.

Year	Total mass of household waste in thousands of tonnes (including total household recycling)	Total mass of household recycling in thousands of tonnes	Percentage of household waste recycled
2004	25 658	5785	22.5
2006	25 775	7976	30.9
2008	24 334	9398	38.6
2010	23 454	9733	
2012	22 643	9782	43.2

- (i) Calculate the percentage of household waste recycled in 2010.

_____ %

(2)

- (ii) The UK government has been encouraging a 'zero waste economy'.

In a 'zero waste economy', we reduce, reuse and recycle as much waste as possible.

A newspaper concluded that: **'The government's 'zero waste economy' has been successful.'**

Use information from the table to describe the reasons for and against the newspaper's conclusion.

(4)

- (c) (i) Some waste releases carbon dioxide and methane into the atmosphere. An increase in carbon dioxide and methane contributes to global warming.

Global warming can cause sea levels to rise.

Describe **two** other possible effects of global warming on our environment.

1. _____

2. _____

(2)

- (ii) Storing the carbon dioxide helps to prevent more global warming. Carbon dioxide can be stored (sequestered) in trees when they photosynthesise.

Give **one** different way in which carbon dioxide is sequestered in our environment.

(1)

(Total 11 marks)

Q4.

A new dog food has been developed that does **not** contain meat from cows, sheep or chickens.

The new dog food contains insects.

The insects in the dog food factory are fed on waste vegetables.

- (a) Sketch the pyramid of biomass for the food chain that produces food for dogs from insects.

Label the pyramid.

(2)

- (b) Describe **two** reasons why the biomass of the insects eaten by dogs does **not** all become biomass of the dogs.

1 _____

2 _____

(2)

- (c) Explain how making dog food from insects could improve **human** food security in the future.

(4)
(Total 8 marks)

Mark schemes

Q1.

- (a) (i) any **three** from:
- lights to help guide / attract fish (to the holes)
 - (rigid so) holes stay open
 - (holes) allow small / young fish to escape
 - (so that) they can breed
- 3
- (ii) (fishing) quotas / legislation
- 1
- (b) (i) movement is restricted
- 1
- (in a building **or** close together so) heat is conserved
allow in heated buildings to reduce heat loss
- 1
- (ii) any **two** from:
- it is cruel
allow descriptions of 'cruelty'
 - disease spreads faster
 - (meat) often has antibiotics in it
- 2

[8]

Q2.

- (a) (i) 76.0 / 76
- correct answer with or without working gains 2 marks*
allow 76.04 for 2 marks
allow 76.04 with extra decimal places eg 76.042 for 1 mark
- $$\begin{array}{r} 465 \\ \hline 611.5 \end{array}$$
- 611.5 for 1 mark*
- 2
- (ii) mass of fish declines (until 2008)
- ignore use of numbers*
allow number of fish decline (until 2008)
- 1
- (due to an) increase in fishing / overfishing
- 1
- and then rises (until 2010)
- 1
- (which could be due to) quotas / net restrictions working
- allow any reasonable suggestion, such as countries*
swapping quotas or restrictions on fishing during breeding
seasons
ignore less fishing

*if no other marks awarded allow 1 mark for a decrease in mass **and** an increase in mass if answer relates to sustainable fishing*

1

(iii) (this is due to) public awareness / demand
allow legislation / rules

1

(b) fishing quotas / bans

1

(small) net / mesh size

if size of net is stated then it must be smaller

if size of mesh is stated then it must be larger

1

(c) (fish) cannot move freely / as much

1

(therefore) less energy loss from the fish

*do **not** allow 'no energy is lost'*

ignore references to less heat loss through controlling body temperature

ignore references to respiration

1

(there is) more food available / better quality food / fed more often

accept 'high-protein food (for making cells)'

1

(so) there is more energy for growth **or** (more food) is converted to biomass

1

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Q3.

(a) (rapid) growth in population (size)

1

increase in the standard of living

accept description of increased standard of living, eg more packaging, more food thrown away or overbuying resources

1

(b) (i) 41.5

allow 1 mark for $9733 \div 23454$

or

allow 1 mark for 0.415

or

*allow 1 mark for 41.49 **or** 41 **or** 41.4*

2

(ii) any **four** from arguments for:

- there has been a reduction in total waste

- there has been an increase in (total mass of) recycling
- there has been an increase in the percentage of waste recycled
- it (may) not be possible to achieve zero waste.

arguments against:

- there is still a lot of waste (not recycled)
- there has only been a small reduction in total waste
- there was one year (2006) where total waste went up
- the rate of increase of percentage recycled is slowing down
- no information on materials reused
- no information on waste from factories / industry

max 3 marks for a one sided argument

allow as reason against if clear

allow still more than half or 56.8% of waste (not recycled).

4

(c) (i) any **two** from:

- reduce biodiversity **or** extinction
- change in migration patterns
- change in species distribution
- change in climate

ignore rise in sea levels

ignore temperature change

accept correct examples of climate change e.g. storms, flooding, drought

references to weather changing is insufficient

allow ice caps melting or habitat destruction.

2

(ii) any **one** from:

- absorbed by oceans / ponds / lakes
- peat bogs

allow used for skeletons / shells of sea creatures

allow in fossil fuels / limestone.

1

[11]

Q4.

(a) triangular pyramid with 3 levels

1

correct labels: (waste) vegetables / plants; insect(s); dog(s)

*do **not** accept additional incorrect labels*

1

(b) any **two** from:

- carbon dioxide from respiration (from dog)
allow carbon dioxide breathed out (by dog)
- urea from excretion (from dog)
allow urea in urine (from dog)
- not all parts (of insects) are absorbed / digested (by dog)
allow faeces from egestion (from dog)
ignore references to loss of energy

*if no other mark awarded allow **two** factors
without descriptions for **1** mark*

2

(c) less land required

1

(so) more space for crops (for humans)

allow more meat (from cows etc) for humans

1

less methane (from animals) therefore less global warming

*allow less methane from rotting vegetables in
landfill*

1

(therefore) less harmful effects of global warming on (human) food production

*allow example such as less flooding of farmland
allow may lead to the development of more foods
for humans made from insects*

1

[8]