Q1.

(a) In the following passage, the numbered spaces can be filled with biological terms.

An ecosystem supports a certain size of population of a species, called the (1) capacity. There are often numerous habitats within an ecosystem. Within a habitat, a species occupies a (2) governed by an adaption to both (3) and biotic conditions. Populations of different species form a (4).

Write the correct biological term beside each number below that matches the space in the passage.

1 _____

2 _____

3 _____

4 _____

(2)

(b) Suggest **two** reasons for conserving rainforests.

1 _____

_____

2 _____

_____

(2)

(c) Give **three** reasons for the low efficiency of energy transfer from secondary consumers to tertiary consumers in an ecosystem.

1 _____

_____

2 _____

_____

3 _____

_____

(3)

(Total 7 marks)

Q2.

(a) Put a Tick (✓) in the box next to the equation that shows how the net production of consumers, *N*, can be calculated where
I represents the chemical energy store in ingested food
F represents the chemical energy lost to the environment in faeces and urine
R represents the respiratory losses to the environment.

$N = (I - F) + R$ ☐

$N = I - (F + R)$ ☐

$N = I + (F + R)$ ☐

$N = I - (F - R)$ ☐

(1)

In the UK, some female cattle are only used for breeding. This female breeding herd has dairy cows and beef cows.

The table below shows data on dairy cows and beef cows in the UK female breeding herd in December 2013 and December 2017.

Date	**Total number in female breeding herd / millions**	**Percentage of total female breeding herd**	
		Dairy cows	**Beef cows**
December 2013	3.35	54	46
December 2017	3.45	55	45

(b) In December 2017, the female breeding herd was 48% of all female cattle in the UK.
Use the table above to calculate the percentage of all female cattle that were beef cows in the UK in December 2017.

Answer _____ %

(1)

(c) Use the table above to calculate the increase in the number of dairy cows in the UK female breeding herd between December 2013 and December 2017.

Show your working.

Increase in number _____

(2)

(d) Farming cattle for humans to eat is less efficient than farming crops because of energy transfer.
Explain why.

_____

_____

_____

_____

_____

_____

_____

_____

(2)

(Total 6 marks)