Week 4 Learning Check
Biology Higher

Name: _____

Class: _____

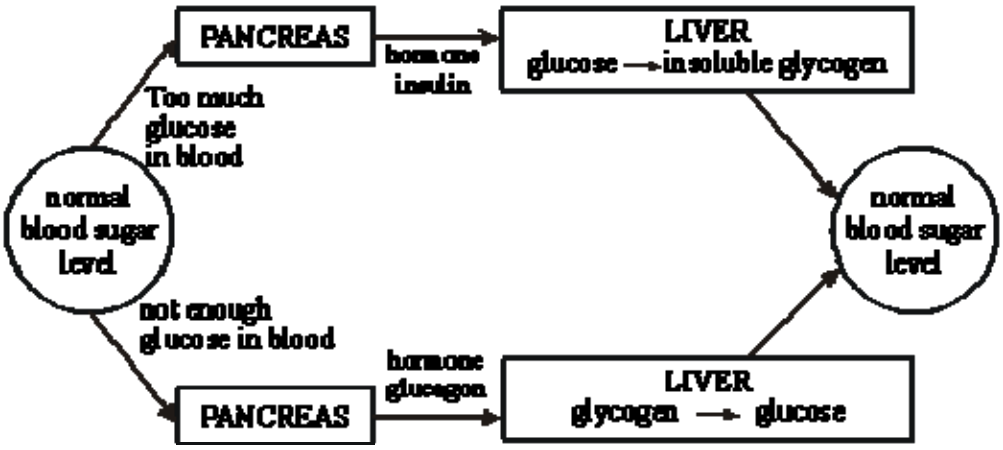
Date: _____

Time: **30 minutes**

Marks: **30 marks**

Comments:

Q1.



The diagram shows how the blood sugar level is controlled in the body.

Explain fully what would happen if somebody ate some glucose tablets.

(Total 4 marks)

Q2.

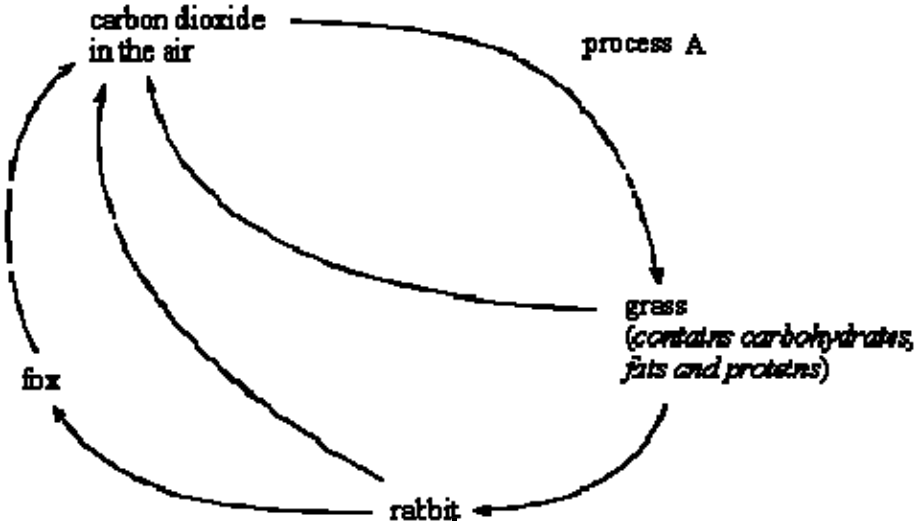
A woman wants to have a baby. She has been told that her body is not making and releasing eggs. However she has thousands of cells which could develop into them. A possible treatment is to give her a hormone called FSH. This hormone will start the development of these cells.

Once the eggs have developed, explain what causes their release.

(Total 4 marks)

Q3.

The diagram shows part of the carbon cycle.



(a) Write down the name given to process A.

_____

(1)

(b) Explain, as fully as you can, how some of the carbon in the grass becomes part of the fox's body.

_____

_____

_____

_____

_____

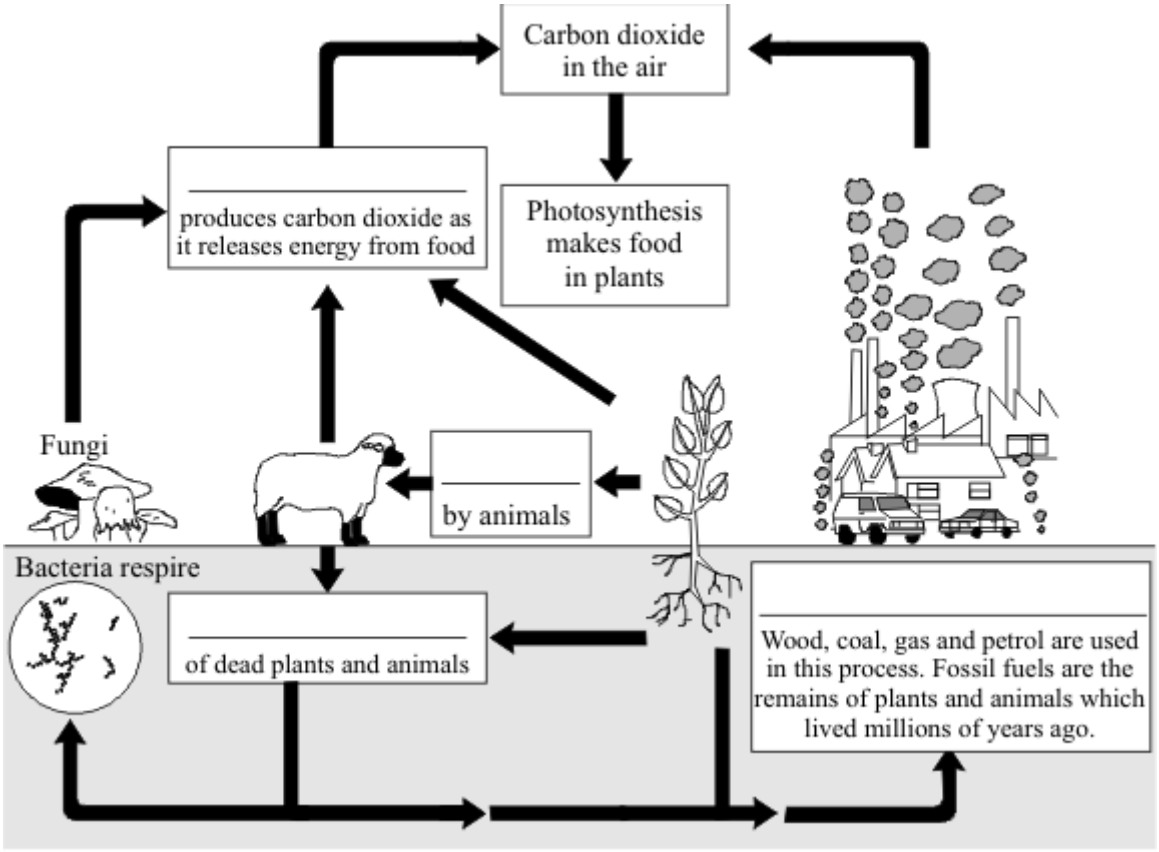
(3)

(Total 4 marks)

Q4.

(a) Use the words in the box to fill in the gaps in the diagram. You may use each word once or not at all.

carbon	burning	decay	eaten
nitrogen	oxygen	pollution	respiration



(4)

(b) (i) Why are fungi called decomposers?

_____

(1)

(ii) Give **one** other type of decomposer.

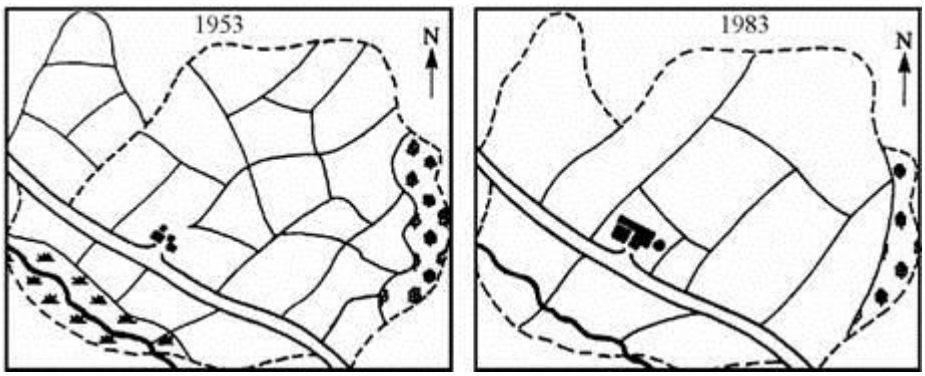
_____

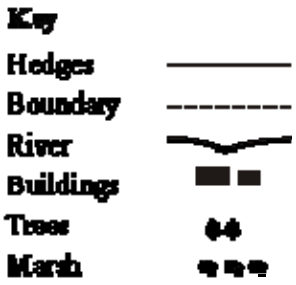
(1)

(Total 6 marks)

Q5.

The drawings show changes to a farm between 1953 and 1983.





The fields on the farm are separated by hedges.

(i) Give **two** major changes which were made to the land on this farm between 1953 and 1983.

1. _____

_____

2. _____

_____

(2)

(ii) How would these changes affect the number of wild animals which live on the farmland?

_____

Explain your answer.

_____

_____

(2)

(Total 4 marks)

Q6.

Approximately a third of UK domestic rubbish is organic matter such as food waste and gardening rubbish.

Many councils have started industrial composting schemes to decompose these wastes. One product of the decomposition is compost (decaying organic matter).

Use this information and your own knowledge to suggest reasons why more councils should be encouraged to start industrial composting schemes.

_____

_____

_____

_____

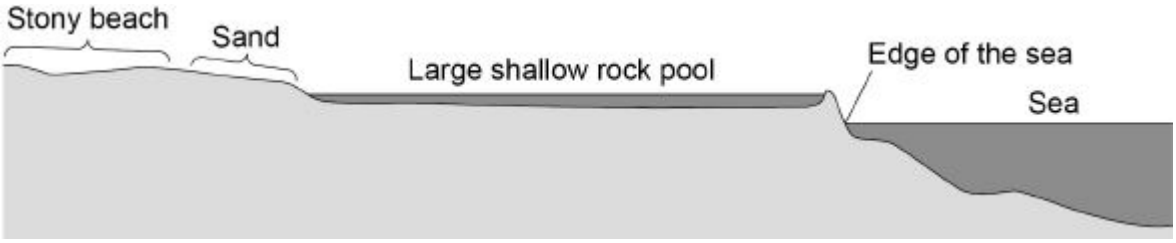
_____

(Total 3 marks)

Q7.

Figure 1 shows a rocky shore.

Figure 1



Students were asked to investigate how the abundance and distribution of different organisms change as you move from the edge of the sea to the stony beach.

(a) Describe a method the students could use.

(Total 6 marks)

Q1.

idea:
glucose level rises
pancreas releases insulin
glucose → glycogen (in liver)/removes xs glucose
glucose level falls/returns to normal
for 1 mark each

[4]

Q2.

oestrogen produced
gains 1 mark

but N.B. sequence important here
oestrogen produced by ovary
gains 2 marks

LH produced
gains 1 mark

but
LH produced by pituitary
gains 2 marks

LH causes egg release
for1 mark

[4]

Q3.

(a) photosynthesis
for 1 mark

1

(b)
- grass eaten by rabbit
- rabbit eaten by fox
- carbon becomes part of fats/proteins in the fox's body
- or passes along the chain as (carbohydrate) / fat / protein

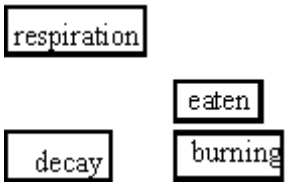
each for 1 mark
[Do not accept 'carbon gets into fox's body', for third mark]

3

[4]

Q4.

(a) **1** mark for each



4

(b) (i) digests **or** breaks down **or** decays
dead (organic) material

accept rots for digests

accept plants for dead organic material

*do **not** accept 'live on' **or** 'decompose'*

1

(ii) bacteria **or** worms **or** maggots

*accept microbes but **not** germs **or** viruses*

1

[6]

Q5.

(i) fewer hedges
marsh drained
less woodland/trees
more farm buildings

any 2 for 1 mark each

2

(ii) fewer
e.g. fewer habitats

for 1 mark each

2

[4]

Q6.

reduces landfill

accept reduces pollution from burning wastes

ignore less waste unqualified

1

scheme self-financing
or
produces compost / fertiliser which can be sold

1

produces nutrients / fertiliser / minerals (ions) for plants

allow returns / recycles nutrients into soil

ignore helps plants grow

1

[3]

Q7.

(a) **Level 3:** The method would lead to the production of a valid outcome. All key

steps are identified and logically sequenced.

5–6

Level 2: The method would not necessarily lead to a valid outcome. Most steps are identified, but the method is not fully logically sequenced.

3–4

Level 1: The method would not lead to a valid outcome. Some relevant steps are identified, but links are not made clear.

1–2

No relevant content

0

Indicative content

- lay a transect line from the edge of the sea up to the stony beach
- place a quadrat at regular intervals
- on the same side of the transect line each time
- use quadrats that don't float
- count number of each species present (in the quadrat)
  or estimate percentage cover of plant / seaweed / algae
- use a key to identify the individual species
- repeat another transect line parallel to the original / 5m further along the shore
- conduct at least three transect lines
- calculate the means for each distance up the shore

to access **level 3** the key ideas of using quadrats with transect lines and counting the number of each species need to be given to produce a valid outcome

[6]

Q1.

This data interpretation question was generally well answered, though a few candidates imported quite a lot of additional information for which no additional credit was available.

Q4.

Part (a) of this question was generally answered well by most candidates. In part (b) the vast majority of candidates failed to show an understanding of decomposers, a common mistake being that the decomposer itself is decomposing in a biodegradable way.

Q5.

Descriptions of the changes were usually well described, but many then went on to say why these changes would affect animals without stating how the number would be affected.

Q6.

Most students said industrial composting schemes would reduce landfill, but only a few said the compost could be sold. The third marking point needed a reference to nutrients or fertiliser being produced, as well as a reference to plants or soil. Over half of students gained at least one mark, with a tiny proportion achieving maximum marks.

Q7.

(a) This 'extended response' question was designed to test concepts and skills acquired during the performance of a Required Practical Activity. Students struggled to write a logical and clear account. Many did not seem to remember the correct terms so wrote of a 'metal wire thing' and 'Punnett squares'. Students often did not make the meaning of 'along the shore' clear.

Many students gave a reasonable account of the use of quadrats but did not answer the question regarding distribution and abundance across the shore.

The question did differentiate between students well. 32% of students accessed Level 2 and 7% achieved five or six marks. However, a large proportion of students received no marks: 13% of students did not make an attempt, and 24% gave responses that couldn't be credited with any marks.

(b) 69% of students achieved one or two marks here. 'Dog whelk' was the most common incorrect answer. A significant number of students appeared to interpret 'most abundant' as 'least common'. Many students who gave 'toothed wrack' said 'because there were more of them' without explaining how the diagram showed that.

(c) 7% of students scored any marks in this high demand question. A commonly seen answer was 'greater biodiversity because more things live there'.