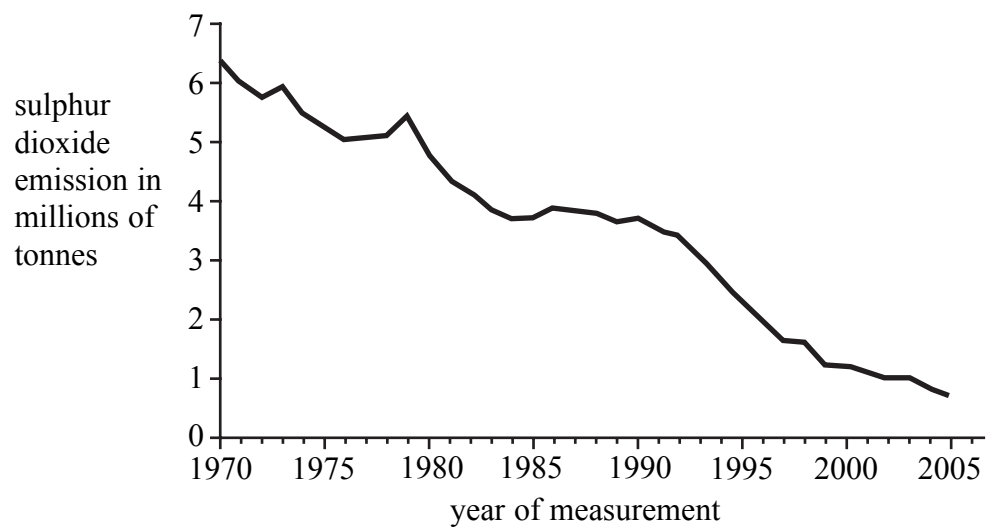


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1. The graph shows how sulphur dioxide emissions by human activity have changed in the UK between 1970 and 2005.



(a) Describe the pattern in sulphur dioxide emissions between 1970 and 2005.

.....
.....
(1)

(b) How is sulphur dioxide produced by human activity?

.....
.....
(1)

(c) Describe how sulphur dioxide can become acid rain and how this affects the environment.

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.....
(3)

(Total 5 marks)

Q1



2. Richard has found lots of blanket weed in a local pond.
Blanket weed is a kind of algae.



- (a) Blanket weed grows when there is too much nitrate in the water.
Suggest a possible source of the nitrate.

.....
.....
(1)

- (b) The blanket weed grows at the surface of the water.
What effect might this have on the plants at the bottom of the pond?

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.....
.....
.....
(2)



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(c) Eventually the blanket weed will die, sink to the bottom and rot.
What effect will this have on the pond environment?

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(2)

Q2

(Total 5 marks)



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3. The International Olympic Committee has banned athletes from using some chemicals, such as growth factors.

(a) (i) What effect do these growth factors have on the body?

.....
.....

(1)

(ii) Why might some athletes be tempted to take growth factors?

.....
.....

(1)

(b) Give **two** harmful side-effects that using growth factors can have on the body.

1

2

(2)

(c) Why do many people have ethical concerns about athletes using growth factors?

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.....

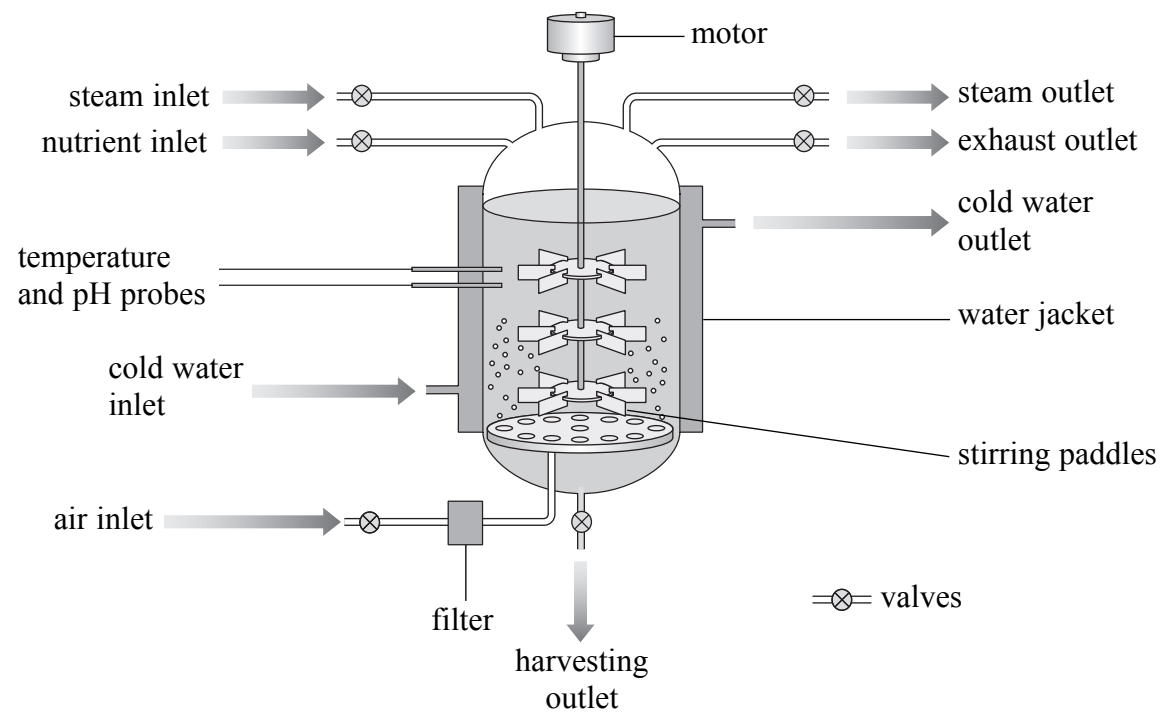
(1)

(Total 5 marks)

Q3



4. An industrial fermenter is designed to provide optimum conditions for the growth of microorganisms.



(a) The inside of the fermenter is sterilised before it is used.
Why are aseptic precautions necessary?

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(1)

(b) (i) Why is the air filtered before it is pumped into the fermenter?

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(1)

(ii) Why would the fermenter be supplied with air?

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(1)



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(c) How are conditions inside the fermenter monitored?

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(1)

(d) Why are the conditions inside the fermenter controlled?

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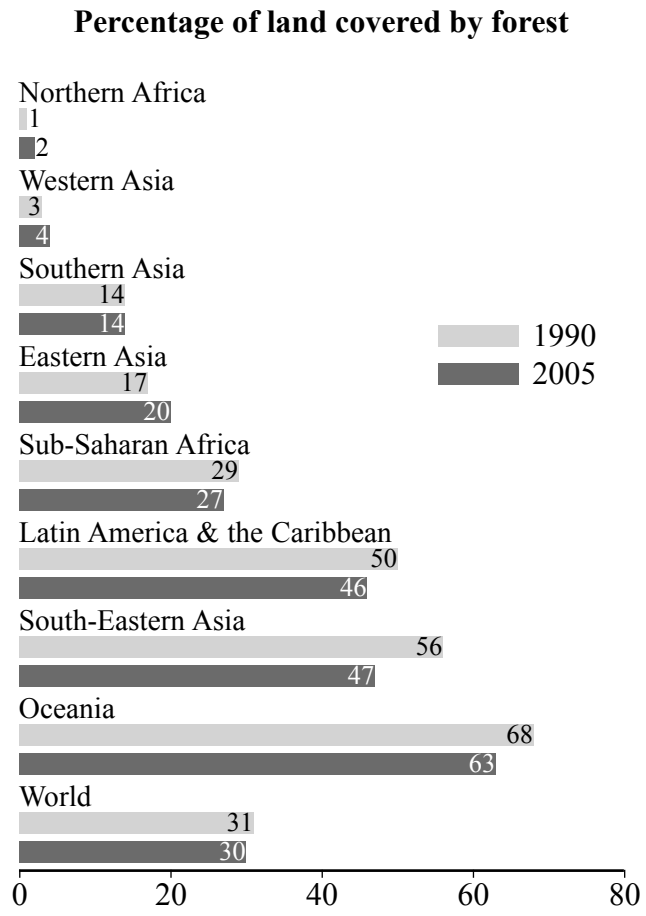
(1)

Q4

(Total 5 marks)



5. The human population of the world is increasing by about 3 people every second. One effect of this increasing population is more deforestation. The diagram shows how the amount of forest has changed between 1990 and 2005 in different parts of the world.



- (a) (i) In how many regions are forests increasing?

..... (1)

- (ii) In which region did the highest percentage of deforestation take place?

..... (1)



(b) Describe the impact of deforestation on the environment.

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(3) Q5

(Total 5 marks)



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6. Dolly the sheep was a cloned mammal.
There are several stages in the cloning process.

(a) The first stage is the removal of an unfertilised egg from a sheep.
What happens to this unfertilised egg in the next stage of cloning?

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(1)

(b) Describe the remaining stages in the process of cloning.

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(4)

Q6

(Total 5 marks)

TOTAL FOR PAPER: 30 MARKS

END

