Practice Question Set For GCSE
Subject : Biology
Paper-1 Topic: B2 Organisation

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Name of the Student:_____
Max. Marks : 19 Marks **Time : 19 Minutes**

Q1.

This question is about the heart.

(a) Why is the heart described as an organ?

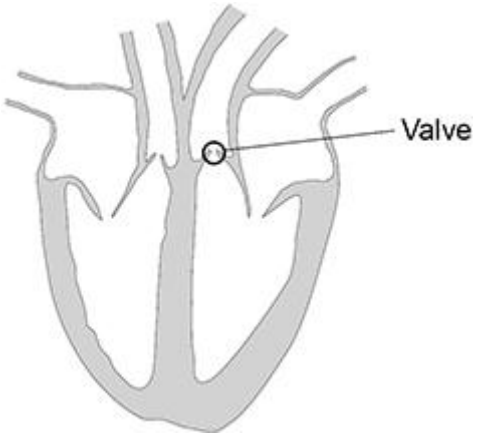
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(1)

(b) Valves in the heart keep the blood flowing through the heart in one direction.

The diagram below shows the heart with one of the valves labelled.



Explain the effects on a person if the valve labelled in the figure above developed a leak.

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(4)

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(c) Faulty heart valves can be replaced using biological or mechanical valves.

The faulty valve is replaced during an operation.

Biological valves:

- are from animals or human donors
- allow blood to flow through them normally
- wear out and stiffen over time, so may need to be replaced.

Mechanical valves:

- are made from synthetic materials
- may cause blood clots on the surface of the valve
- require anti-clotting drugs to be taken for the rest of the patient's life
- can last for a very long time in ideal conditions.

A young woman enjoys extreme sports and would like to start a family.

The woman needs a heart valve replacing.

Describe the advantages and disadvantages for this young woman of having a biological heart valve instead of a mechanical heart valve.

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(4)

(Total 9 marks)

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Q2.

Fermentation in yeast is used in the manufacture of bread and alcoholic drinks.

The equation for fermentation is:

glucose → ethanol + carbon dioxide

(a) Fermentation is an exothermic reaction.

What does exothermic mean?

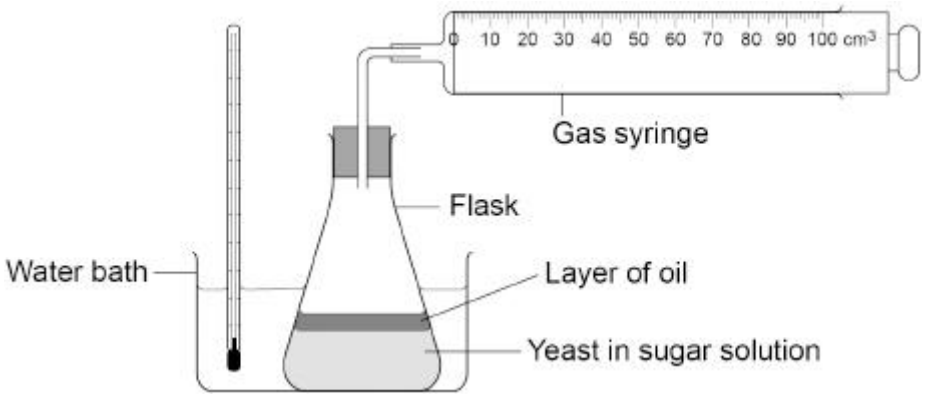
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(1)

A student investigated the effect of temperature on fermentation in yeast.

The figure below shows the apparatus.



This is the method used.

1. Mix yeast with sugar solution in a flask.
2. Pour a layer of oil over the surface of the mixture.
3. Put the flask in a water bath at 2 °C and leave for 20 minutes.
4. Attach a gas syringe.
5. Record the volume of gas collected every 5 minutes for 30 minutes.
6. After 30 minutes move the flask to a water bath at 35 °C.
7. Continue to record the volume of gas collected every 5 minutes.

(b) Suggest why a layer of oil was needed on the surface of the mixture.

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(1)

(c) Suggest why the mixture was left for 20 minutes before the gas syringe was attached.

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(1)

Steps 1 to 4 of the method were repeated at 35 °C.

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The volume of gas collected was recorded every 5 minutes for 45 minutes.

Table 1 shows the results for both flasks for the first 30 minutes.

Table 2 shows the results for the last 15 minutes, when both flasks were at 35 °C.

Table 1

Time in minutes	Volume of gas collected in cm^3	
	Flask at 2 °C	**Flask at 35 °C**
0	0	0
5	0	26
10	0	52
15	0	78
20	0	98
25	0	108
30	0	115

Table 2

Time in minutes	Volume of gas collected in cm^3	
	Flask at 2 °C moved to 35 °C	**Flask kept at 35 °C**
35	2	120
40	7	123
45	22	124

(d) Explain the results from 0 minutes to 45 minutes for the flask that was at 2 °C and was then moved to 35 °C.

Use **Table 1** and **Table 2**.

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(3)

(e) Explain the results from 0 minutes to 45 minutes for the flask kept at 35 °C.

Use **Table 1** and **Table 2**.

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(4)

(Total 10 marks)

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