Practice Question Set For A-Level
Subject : Biology
Paper-1 Topic:1 Biological Molecules

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Name of the Student:_____
Max. Marks : 24 Marks **Time : 24 Minutes**

Q1.

(a) Describe how a quaternary protein is formed from its monomers.

Do not include the process of translation in your answer.

(5)

(b) Describe the structure of DNA and the structure of a chromosome.

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(6)

(c) Mutation can result in an increase in genetic variation within a species.

Describe and explain the **other** processes that result in increases in genetic variation within a species.

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(4)

(Total 15 marks)

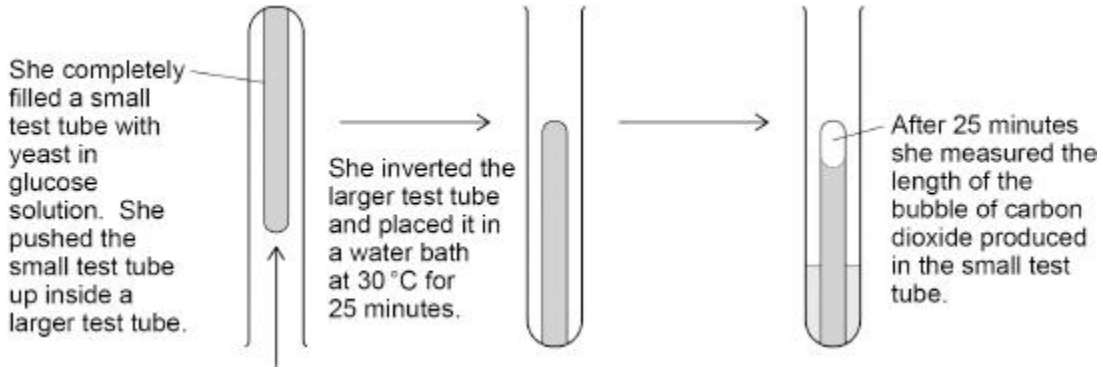
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Q2.

A student investigated the effect of different sugars on the rate of respiration in yeast. Yeast normally respires glucose.

Figure 1 shows the method she used for her first experiment.

Figure 1



(a) Other than those stated, suggest **two** variables the student needed to keep constant in her investigation.

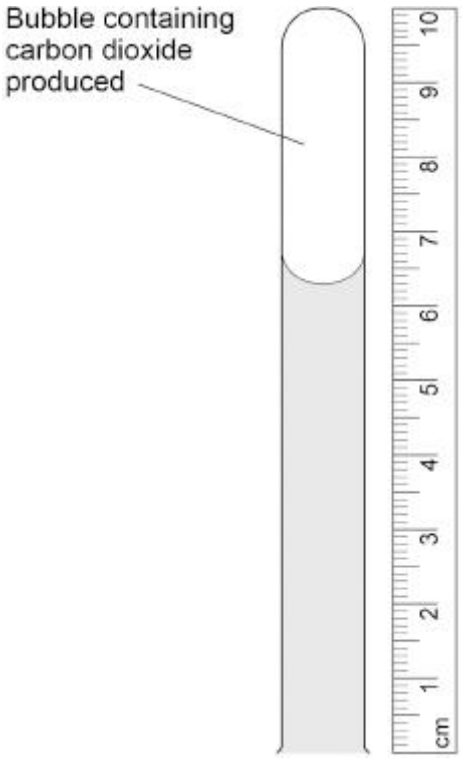
1 _____

2 _____

(1)

Figure 2 shows the result she obtained for yeast in glucose solution.

Figure 2



(b) Use **Figure 1** and **Figure 2** to calculate the rate of carbon dioxide production in mm s^{-1} for yeast in glucose solution.

Give your answer in standard form **and** to **2** significant figures.

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Show your working.

Answer _____ mm s^{-1}

(2)

(c) The student repeated the experiment using yeast in maltose solution. She found the rate of carbon dioxide production was slower than with yeast in glucose solution. Suggest why.

_____

_____

_____

_____

_____

(2)

(d) A second student used a different method to investigate the effect of different sugars on the rate of respiration in yeast.

He set up a tube with yeast in glucose solution and added bromothymol blue. Bromothymol blue changes from blue to yellow when carbon dioxide is produced.

To determine the rate of respiration, he timed how long it took for the solution to change from blue to yellow.

Suggest:

- why the method the second student used would be less accurate than the method the first student used
- how the accuracy of the method the second student used could be improved.

This method would be less accurate because

_____

_____

_____

The accuracy of this method could be improved by

_____

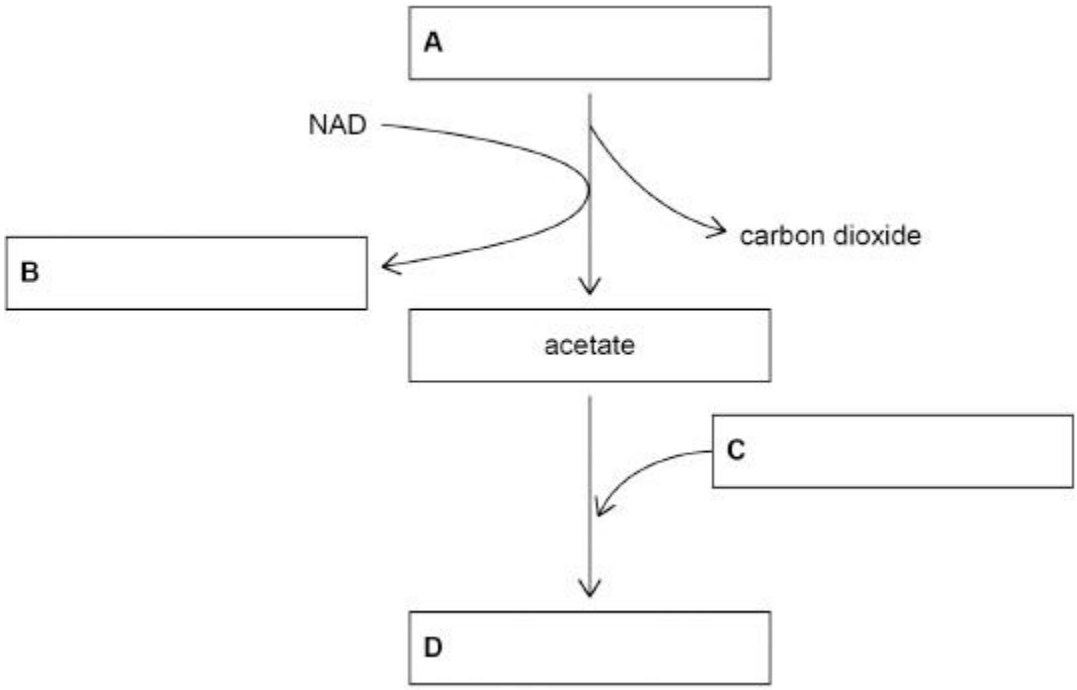
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(2)

(e) Complete the boxes **A** to **D** in **Figure 3** to show the link reaction.

Figure 3



(2)
(Total 9 marks)

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