AQA, OCR, Edexcel

A Level

A Level Biology

Respiration 2 Questions

Name:

M M E

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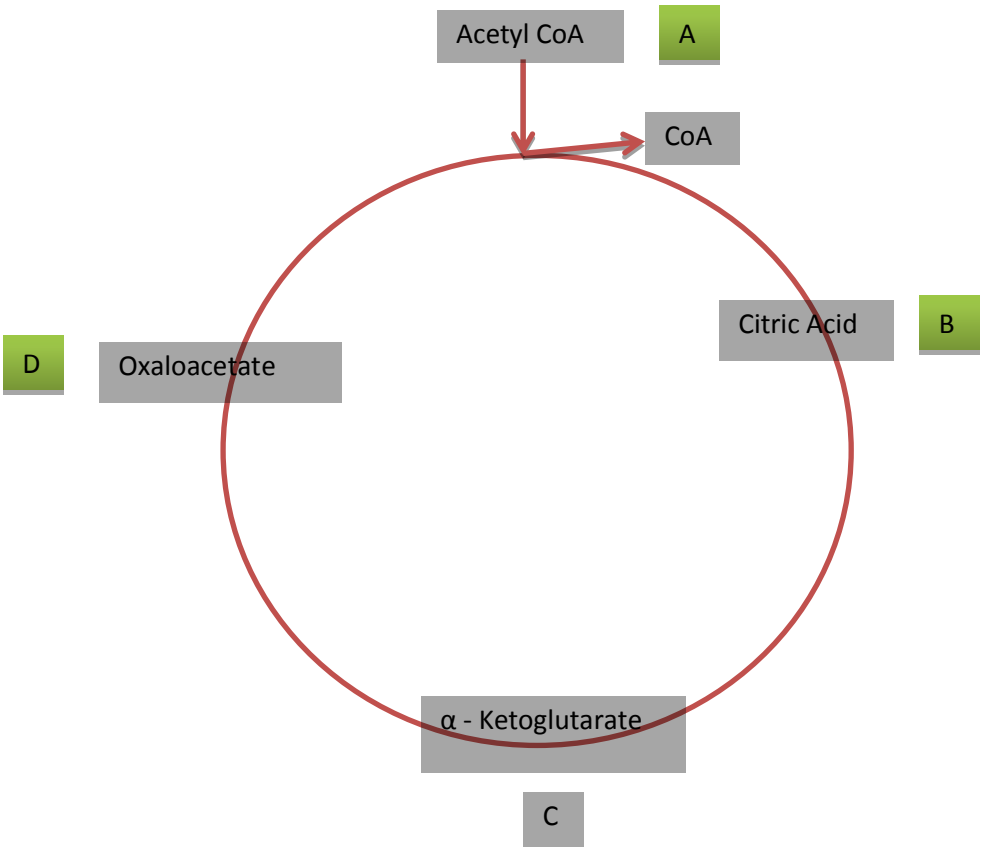
Total Marks: /41

Respiration

1. The third stage of respiration is the Krebs Cycle. It involves a series of oxidation and reduction reactions.

   a) i) Exactly where in the cell does the Krebs Cycle take place? (1 mark)

   ii) On the diagram below, identify the number of carbon atoms at each of the stages labelled A – D. (4 marks)



   iii) What happens to the CoA after the Krebs Cycle? (1 mark)

   iv) What are the other products of the Krebs Cycle? (4 marks)

2. Oxidative phosphorylation is the final stage of aerobic respiration. This is the stage in which most of the ATP is produced.

   a) Different amounts of ATP are produced at each stage of aerobic respiration.

   i) Complete the table below to show how much ATP is produced at each stage of aerobic respiration for **one molecule** of glucose. (4 marks)

Stage of respiration	No. of ATP molecules produced
Glycolysis	
Link Reaction	
Krebs cycle	
Electron Transport Chain	

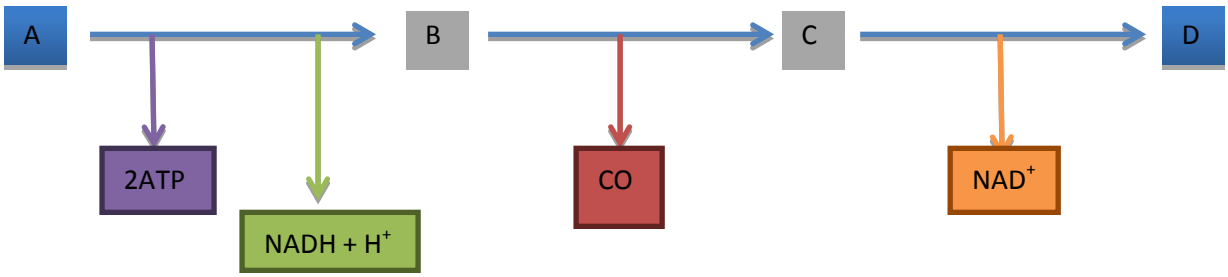
ii) Explain fully how the molecules of reduced NAD and FAD are used to produce ATP? (8 marks)

iii) How is water formed at the end of the electron transport chain? (2 marks)

3. There are some conditions when oxygen is in short supply where energy has to be obtained from anaerobic respiration.

a) Anaerobic respiration is different for animals and microorganisms. Alcoholic fermentation occurs in microorganisms and is used commercially to make alcohol.

i) Complete the diagram below labelling A-D (4 marks)



b) In animal cells, lactate fermentation occurs.

i) Why it is important for NAD to be regenerated? (1 mark)

ii) Why does anaerobic respiration often occur in muscle cells? (2 marks)