**1.** The electron micrograph below shows an organelle in a eukaryotic cell. What is the area labelled X and what is the type of reaction occurring there?



[Source: http://scienceblogs.com/clock/2006/11/cell\_structure.php]

|  |  |  |
| --- | --- | --- |
|  | **X** | **Reaction** |
| A. | matrix | photolysis |
| B. | stroma | Krebs cycle |
| C. | stroma | photolysis |
| D. | matrix | Krebs cycle |

(Total 1 mark)

**2.** (a) Draw a labelled diagram of a mitochondrion.

(3)

(b) Explain how the structure of a mitochondrion is adapted for its function.

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(2)

(Total 5 marks)

**3.** During glycolysis a hexose sugar is broken down to two pyruvate molecules. What is the correct sequence of stages?

A. Phosphorylation → oxidation → lysis

B. Oxidation → phosphorylation → lysis

C. Phosphorylation → lysis → oxidation

D. Lysis → oxidation → phosphorylation

(Total 1 mark)

**4.** Explain the link reaction that occurs between glycolysis and the Krebs cycle.

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(Total 4 marks)

**5.**

(c) Explain the production of energy during aerobic respiration from pyruvate that has been produced by glycolysis.

(8)

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**6.** In the mitochondrial electron transport chain, what is the last electron acceptor?

A. CO2

B. H2O

C. O2

D. NAD

(Total 1 mark)