

Answer key for Quiz 2
 NESA 2002

1. Number for one glucose molecule:

Glycolysis –

Used: 2 ATPs

Produced:

4 ATPs

2 NADH

2 pyruvate

Oxidative decarboxylation

Used: 2 pyruvate

Produced:

2 NADH

2 Ac-SCoA

Citric Acid Cycle

Used: 2 Ac-SCoA

Produced:

6 NADH

2 FADH₂

2 ATPs

Electron transport and oxidative phosphorylation.

Total NADH: 2+2+6 = 10

Total FADH₂: 2

Ideal (3 ATP/NADH, 2 ATP/ FADH₂)

10 • 3 + 2 • 2 = 34 ATPs

From *Glycolysis*: 4

Used in *Glycolysis*: – 2

From *CAC*: 2

Total/glucose: 38

Overall production: 114 ATPs

Empirical (2.5 ATP/NADH, 1.5 ATP/ FADH₂)

10 • 2.5 + 2 • 1.5 = 28 ATPs

4

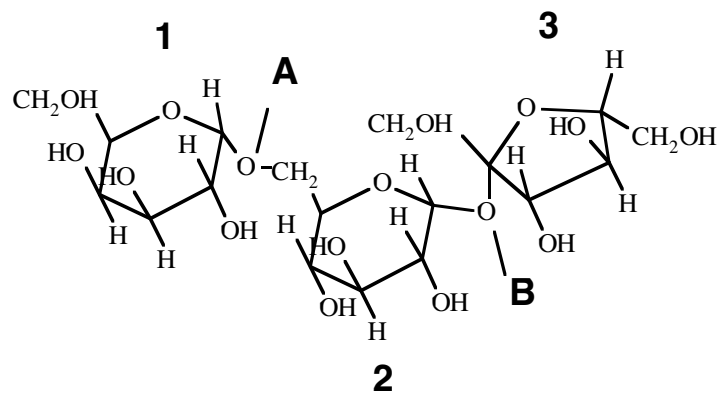
– 2

2

32

96 ATPs

2. Referring to the diagram below



1 Galactose 2 Glucose 3 Fructose

3. From diagram in answer 2

A $\alpha(1,6)$ **B** $\alpha,\beta(1,2)$

4. Reactions (a) and (b) are exergonic, and reaction (c) is endergonic. Reaction (b) produces a phosphate (GTP) that can later yield energy by giving up a phosphoryl group.

5.

