Section B Self-Test

Question 1
What is the difference between catabolism and anabolism in cells?

Question 2
What is activation energy and what is the effect of enzymes on chemical reactions in living organisms?

Question 3
Define the following terms: reduction potential; redox coupled reactions and electron carriers

Question 4
Calculate the energy yield from the electron transfer of NAD to oxygen using the equations and supporting information below.

$$NAD^+ + 2H^+ + 2e \rightarrow NADH + H^+$$

$$\tfrac{1}{2}O_2 + 2e \rightarrow O_2^{2-}$$

Nernst Equation $\Delta G = -nF\Delta E$
Where F is the Faraday constant and is 23,000 calories/volt

Data sheet oxidation reduction potentials

Redox pairs	E in volts
CO_2/acetate	- 0.432
H^+/H_2	- 0.420
$NAD^+/NADH_2$	- 0.320
FAD/FADH	- 0.280
S/HS^-	- 0.220
SO_3/S	- 0.110
Fumerate/Succinate	+ 0.030
NO_3/NO_2	+ 0.430
Fe^{3+}/Fe^{2+}	+ 0.770
O_2/H_2O	+ 0.820

Question 5

What is adenosine triphosphate and why is it important in cells?

Check Answers