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2015 ASOE Answers

Part A:

Question	Answer		
1	B	21	D
2	D	22	A
3	A	23	D
4	A	24	A
5	B	25	C
6	A	26	B
7	B	27	A
8	D	28	C
9	B	29	D
10	A	30	D
11	B	31	A
12	C	32	B
13	C	33	C
14	D	34	C
15	A	35	B
16	D	36	C
17	C	37	B
18	B	38	C
19	B	39	A
20	A	40	D

Part B:

Q41		Q42		Q43		Q44		Q45	
A	T	A	F	A	F	A	T	A	F
B	F	B	F	B	T	B	F	B	T
C	F	C	T	C	T	C	F	C	F
D	T	D	F	D	T	D	T	D	F
Q46		Q47		Q48		Q49		Q50	
A	T	A	T	A	T	A	F	A	T
B	T	B	T	B	F	B	T	B	F
C	T	C	F	C	T	C	F	C	T
D	T	D	T	D	T	D	T	D	F

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Part C:

1. a) 5 marks: 1 mark title, 0.5 marks each axis title + 0.5 each units (2 total), 1 mark each line. Lose 1 for having axes around the wrong way
   b) 2 marks: 1 for working (readings of 5.75 and 1.75 8 minutes apart), 0.5 for answer + 0.5 for units (0.5 micormoles dm^{-3} min^{-1}
   c) 1 mark: 0.5 for solution (A), 0.5 for explanation
   d) 4 marks: 2 for each condition with 1 for the condition and 1 for a method (eg. temperature using a water bath)
   e) 2 marks: 2 of tenderising meat, predigesting baby foods, rennet in cheese, biological washing powders, making leather pliable, dissolving blood clots, lowering protein content of flour to make biscuits, brewing, etc.
2. a) 2 marks: 0.5 for original double-stranded segment, 0.5 for "unzipping" image, 1 mark for two replicated double strands with one strand original and one stand containing new nucleotides
   b) 2 marks: 1 mark for "weigh more", 1 mark for reasoning (newly synthesized nucleotides would be made of the heavier N isotypes)
   c) 2 marks: 0.5 for 50 pairs= 100 nucleotides, 0.5 for if 33 are C this means 33 are G therefore 34 are left for adenine and guanine, 1 mark for 17 being from adenine alone
3. a) 1 mark: 0.5 for no, 0.5 for reason
   b) 1 mark: 0.5 for no, 0.5 for reason
   c) 2 marks: 1 for anaerobic as it seems to be more important to power athletes, 0.5 for "power athletes tend to require shorter bursts of energy", 0.5 for contrast (eg. endurance athletes tend to require more sustained energy supplies)
4. a) 1 mark: atenolol decreases heart rate
   b) 2 marks: 1 mark for answer (decrease blood pressure), 1 mark for reasoning
5. a) 1 mark: 1 for answer eg. sample mean/average of results, etc.
   b) 1 mark: 1 mark for 74.125 (ECF)
   c) 2 marks: 1 mark for conclusion (value didn't reach critical level so it isn't significant), 1 mark for what this means (eg. we cannot say the virus has a higher infection rate than the wild type)
6. a) 5 marks: 1 per cell
   b) 5 marks: 1 mark for title, 0.5 for each axis label + title (2 marks total), 1 for correct points, 1 mark for line of best fit
   0.5 for continuing line past the last point
   c) 1 mark: day 8