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Example Exam 4 Answers – S11

v1.1

Gluconeogenesis

1. A – glucose from non-carbohydrate precursors.
2. A – exergonic; hexokinase; PFK 1; pyruvate kinase
3. A – phophoglucoisomerase
4. D – endoplasmic reticulum; glucose
5. E – 6

Glycogen Metabolism and the Pentose Phosphate Pathway

6. B – branched; debranching enzyme; glucanotransferase; α(1→6)glucosidase
7. C – the phosphorolysis of glycogen to generate glucose-1-phosphate.
8. C – phosphorylase 'a' is phosphorylated, and is persistently active.
9. B – B, C, E, A, D
10. E – phosphorylates glycogen phosphorylase.
11. D – glucose-6-phosphatase; blood glucose; hypoglycemic
12. C – NADPH; ribose-5-phosphate
13. C – the non-oxidative enzymes produce pentose phosphates from fructose-6-phosphate and glyceraldehyde-3-phosphate.

The TCA Cycle

14. A – Acetyl-CoA
15. D – acetyl-CoA; CO_2; ATP; NADH; [$FADH_2$]
16. B – cytoplasm; mitochondria
17. B – oxidative decarboxylation; pyruvate dehydrogenase complex
18. C – C, D, B, E, A
19. C – Aconitase; water; aconitate; rehydration
20. A – aconitase
21. D – isocitrate dehydrogenase and α-ketoglutarate dehydrogenase
22. D –.pyruvate dehydrogenase
23. E – biotin
24. D – succinyl-CoA synthetase
25. C – B, C, A, D
26. D – oxaloacetate is used in the next reaction which has a negative ΔG
27. C – 3
28. A – use of many of the TCA cycle intermediates in biosynthesis.
29. E – α-Ketoglutarate dehydrogenase complex

Electron Transport and Oxidative Phosphorylation

30. B – Oxaloacetate would become reduced, NADH would become oxidized.
31. A – UQH_2
32. D – substrate-level; oxidative
33. A – The proton gradient.
34. B – negative; oxidation; reducing
35. C – cytochrome c
36. C – reduced coenzyme Q.
37. E – complex IV
38. D – cytochrome c
39. C – NADH
40. C – shuttles from complex I and complex II to complex IV.
41. E – A & B
42. A – two; inner; four; electrons
43. A – molecular oxygen.
44. C – four
45. B – UQH_2
46. A – 1, 3, & 4
47. B – the F_0 component is hydrophilic.
48. E – proton; Asp; γ; β.
49. B – ATP/ADP ratio increases in the presence of an uncoupler.
50. D – the number of ATP molecules made for each two electrons transferred.

Gluconeogenesis (Ch 22, Part 1):
Will be on exam 4 for Dr. Spiro
Was on exam 3 for Dr. Candas

Pentose Pathway is NOT on the exam!

"True friends are like the stars on cloudy nights. You can't always see them, but they're always there."

Problem Set #4: Due Wednesday 12/12 at 5:00PM
Owl Assignments: Due Wednesday 12/12 by 5:00PM

Exam #4 Review: Sunday 12/9 at 1:00PM – SLC 1.102
Exam #4: Friday 12/14 at 8:00AM (Candas)
Saturday 12/15 at 11:00AM (Spiro)