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CHAPTER 4 – ENERGY & THE CELL

1. An example of kinetic energy is:
   1. A parked car
   2. Water behind a closed dam
   3. A ball rolling down the hill
   4. Person sitting on a chair
2. This system does *not* have potential energy:
   1. Water behind a closed dam
   2. A ball at the top of the hill
   3. A kid on a gym beam
   4. A sheet of paper on a desk
3. Which system has the highest entropy:
4. Frozen water
5. Liquid water
6. Water vapors
7. Melted butter
8. Catabolism is:
   1. Making molecules
   2. Breaking molecules
   3. Making chemical bonds
   4. Gaining weight
9. Which reaction is exergonic:
10. C6H12O6 + 6 O2 🡺 6 CO2 + 6 H2O + energy
11. 6CO2 + 6H2O + energy 🡺 C6H12O6 + 6 O2
12. A + B 🡺 C
13. A + energy 🡺 B + C
14. An enzyme’s role in the cell is to:
15. Speed up chemical reactions
16. Slow down chemical reactions
17. Brings more energy into reactions
18. Transforms the energy for reactions
19. Enzymes are molecules made of:
20. Carbohydrates
21. Lipids
22. Nucleic acids
23. Proteins
24. The area on the enzyme molecule that binds the reactants is:
25. Active site
26. Passive site
27. Interacting site
28. Promoting site
29. The process where an inhibitor binds in the active site of the enzyme is called:
30. Competitive inhibition
31. Non-competitive inhibition
32. Feedback inhibition
33. Active inhibition

CELLULAR RESPIRATION

1. Cellular respiration generates:
   1. Lipids
   2. ATP
   3. Food
   4. Proteins
2. The correct order of cellular respiration steps is:
3. Glycolysis, pyruvate processing, citric acid cycle, oxidative phosphorylation
4. Glycolysis, citric acid cycle, pyruvate processing, oxidative phosphorylation
5. Glycolysis, pyruvate processing, oxidative phosphorylation, citric acid cycle
6. Glycolysis, citric acid cycle, oxidative phosphorylation, pyruvate processing
7. Anaerobic respiration unlike aerobic respiration makes:
8. Same amount of ATP
9. Less ATP
10. More ATP
11. No ATP
12. The organelle involved in cellular respiration is:
13. Lysosomes
14. Peroxisomes
15. Mitochondria
16. Chloroplasts
17. The only step that takes place in cytoplasm (cytosol) is:
18. Glycolysis
19. Pyruvate processing
20. Citric acid cycle
21. Oxidative phosphorylation
22. Oxidation reaction is:
23. Losing electrons
24. Gaining electrons
25. Sharing electrons
26. Losing protons
27. How many molecules of CO2 are released from one glucose molecule?
28. 6
29. 5
30. 4
31. 3
32. In glycolysis the glucose molecule is broken down in:
33. 2 pyruvate molecules
34. 3 pyruvate molecules
35. 2 Acetyl-CoA molecules
36. 3 Acetyl-CoA molecules
37. FADH2 molecule is made in which step:
38. Glycolysis
39. Pyruvate processing
40. Citric acid cycle
41. Oxidative phosphorylation
42. In oxidative phosphorylation the electrons from NADH & FADH2 go directly to:
43. ETC, electron transport chain
44. Mitochondria
45. Oxygen
46. ATP
47. During cellular respiration the oxygen we inhale is used to:
48. Make glucose
49. Reduce glucose
50. Make CO2
51. Make H2O
52. In the oxidative phosphorylation step the H+ accumulates in the:
53. Matrix
54. Cytosol
55. Intermembrane space
56. Inner membrane
57. The highest amount of ATP (~25molecules) is made in which step of the cellular respiration:
58. Glycolysis
59. Citric acid cycle
60. Pyruvate processing
61. Oxidative phosphorylation
62. The molecule that makes ATP in the chemiosmosis is:
63. ETC
64. Glucose
65. ATP-synthase
66. Protons, H+
67. Fermentation is an example of:
68. Aerobic respiration
69. Anaerobic respiration
70. Photosynthesis
71. Passive transport