Discussion Questions For *The Singularity Is Near*

Kurzweil, Ray. *The Singularity Is Near*. New York: Penguin Viking, 2005.

Prologue - The Power of Ideas

1. Who is Ray Kurzweil and what qualifies him to write authoritatively about technology?
2. Of what "basic philosophy" is Kurzeil convinced? Explain why you do or do not agree with him.
3. What is Kurzweil's worldview? How do you think his early religious influences shaped his thinking about technology?
4. What is the "meta-idea" that Kurzweil has come to appreciate?

Chapter 1 - The Six Epochs

1. What is a singularity?
2. What is the Singularity?
3. What are the Six Epochs? (p. 14 ff)
4. How near is the Singularity? (p. 21 ff)
5. What are the main principles of the Singularity? (p. 25 ff)
6. Does Kurweil think the human race will survive the Singularity? Do you?
7. What is the end-of-chapter dialogue about?

Chapter 2 - A Theory of Technology Evolution: The Law of Accelerating Returns

1. What is complexity? (p. 36 ff)
2. What is order?
3. What is evolution and what does it do to order and complexity? (p. 40)
4. What is the life cycle of a technology? (p. 51 ff)
5. What is Moore's Law? What has been its impact on computer and other electronics technologies? Is that good or bad? (p. 56)
6. What is the pattern or law that Kurzweil sees in the whole history of technology?
7. Does Kurzweil see that Law as a Good Thing or a Bad Thing? How do you see it, in light of last week's discussion?

Chapter 3 - Achieving the Computational Capacity of the Human Brain

1. What are some of the developing technologies that will increase computer power over what is possible today? (pp. 111-122)
2. What is Kurzweil's estimate of the computational speed of the human brain and how does he arrive at it? (p. 123 ff)
3. If his estimate is off, how would that change his predictions about the advance of computer power?
4. When does Kurzweil think computers will achieve the computational speed of the human brain? On what does he base his estimate? Do you think this plausible? Why or why not? (p. 125)
5. What is Kurzweil's estimate of the memory capacity of the human brain and how does he arrive at it? (p. 126)
6. When does Kurzweil think an affordable human-memory-capacity computer memory will be available? On what does he base his estimate? Do you think this plausible? Why or why not? (p. 126)
7. When does Kurzweil predict affordable computers will have the computing power of the human brain? (p. 127)
8. According to Kurzweil, what is the ultimate limit of computational speed for a laptop-size computer? Will we reach it? How?
9. When will the Singularity occur? And what does that mean? (p. 136)
10. To what does the latter part of the conversation on pp. 141-142 allude? What are the implications of that capability?

Chapter 4 - Achieving the Software of Human Intelligence

1. What is approach being taken to achieve software with human intelligence?
2. What are the main differences between the computer and the human brain? (p. 149 ff)
3. What are some tools being used to understand brain structure and function?
4. How does Kurzweil respond to the criticism that the current tools to study the human brain are crude?
5. Are high-resolution, high-fidelity models of the human brain necessary to simulate it's function? Explain. (p. 178)
6. What are some examples of recent brain modeling that give hope to the idea of simulating the entire human brain? (p. 182 ff)
7. What hope is there that a human-brain-equivalent computer can interface to the physical world? (pp. 194-195)
8. Respond to Kurzwei's claim, on p. 198, that “there are no limits to our ability to understand ourselves –or anything else.”
9. Suppose that you had, say, a dozen or twenty of Kurzweil's human-brain-equivalent computers today, fast internet connections, and a team of crack programmers. What good could you do with them? What evil could you do with them? In the hands of others, which would prevail?
10. How might the conversation on pp. 202 – 203 continue?

Chapter 5 - GNR: Three Overlapping Revolutions

1. What is “GNR” and why is it significant to Kurzweil? (p. 205 ff)
2. According to Kurzweil, what is the most powerful “force” in the universe? Why does he believe that is so? Do you agree? Why or why not? (p. 206)
3. What is Kurzweil's personal “longevity bridge”? (p. 210 ff)
4. What is “engineered negligible senescence”? (pp. 212-213)
5. What are the technologies of Genetics that are important to Kurzweil's vision? (p. 213 ff)
6. What does Kurzweil believe will be possible as a result of those technologies? (p. 217 ff)
7. In the dialogue on pp. 225 – 226, do you find yourself more sympathetic to Ned or to Ray? Why?
8. What does Kurzweil draw out as significant in Feynman's 1959 speech, “There's Room At the Bottom”? (p. 227)
9. What is a Drexler “molecular assembler” and how does it work? (p. 228 ff)
10. What does Kurzweil say could be done with molecular assemblers?
11. What is a nanobot and what might nanobots do? (p. 253 ff)
12. Do you find the conversation on pp. 255 – 258 encouraging or disturbing? Why?
13. What is “strong AI”?
14. Why does Kurzweil say it will come to be? (p. 260 ff)
15. What is the “AI winter” and what phase of AI development are we in now?
16. What are some of the technologies of AI? (p. 266 ff)
17. What are some potential applications of strong AI that Kurzweil sees? (p. 279 ff)
18. According to Kurzweil, what is the key to passing the Turing Test? Why is achieving that difficult?
19. The conversations on pp. 297 – 298 seem to equate bacterial evolution with human evolution. Is that a fair and useful parallel? Explain.

Chapter 6 - The Impact ...

1. Of the impacts of GNR that Kurzweil predicts on the human body, which do you think are the most significant? (p. 300 ff)
2. In the dialog on pp. 310 - 311, is Ray's question about drawing “the line” a compelling one for you? Explain
3. In the same dialog, does Bill have a point about “some ineffable quality that gives life meaning”? What might that “ineffable quality” be that technology cannot touch?
4. Of the impacts of GNR that Kurzweil predicts on the human brain, which do you think are the most significant? (p. 312 ff)
5. Considering the dialog on pp. 317 – 320, will Virtual Reality be as good as Real Reality?
6. Of the possible impacts of GNR that Kurzweil predicts on learning, which do you think are the most significant? (pp. 335-337)
7. Of the possible impacts of GNR that Kurzweil predicts on other terrestrial domains, including warfare, work, and play, which do you think are the most significant? (p. 330 ff)
8. What does Kurzweil predict concerning the impact of GNR on the cosmos? (p. 342 ff)
9. Do you think any of this is possible? Explain.
10. What is the Good Life? Will Kurzweil's envisioned future make the Good Life more or less achievable? Explain.

Chapter 7 - Ich bin ein Singularitarian

1. What is a Singularitarian?
2. Are you a Singularitarian?
3. If you are, what do your reflections (see the definition) yield?
4. Do you agree with Kurzweil (p. 370) that “being a Singularitarian is not a matter of faith but one of understanding”? What is the difference between faith and understanding? How are the two related?
5. What are the main points of Kurzweil's “personal philosophy”? (pp. 371-372)
6. On pp. 372 – 373, Kurzweil talks about how, if we can articulate a problem, we can solve it. Can you think of a problem that can be articulated, but might be very difficult, if not impossible, to solve?
7. Do you agree with Ray in the dialog on pp. 374 – 376 that we need a new religion? Explain.
8. From the dialogs on pp. 374 – 376 and pp. 389 – 390, what is Kurzweil's idea of God? Do you agree?
9. Who or what is Ray Kurzweil?
10. Who or what are you? Assuming that the Singularity unfolds as Kurzweil predicts, what will it do to you? Will that be a Good Thing?

Chapter 8 - The Deeply Intertwined Promise and Peril of GNR

1. What does it mean to say (p. 396) that “Technology has always been a mixed blessing ...”? Give your own example of a “mixed blessing” of technology.
2. What is the “gray-goo scenario”? (p. 399)
3. What do you think are the greatest potential perils of technology?
4. What is the “precautionary principle”? What is Kurzweil's response to it? Is he right?
5. What is *risk*? What is an *existential risk*?
6. What is necessary for something to be judged *safe*?
7. Explain the levels of technological relinquishment that Kurzweil describes, and what he thinks of them. (pp. 411-412)
8. What does Kurzweil see as wrong with relinquishment?
9. What is Kurzweil's program for GNR defense? Do you see any problems with it? (pp. 423-424)
10. Comment on Kurzweil's statement on p. 424, “We have no choice but to strengthen our defenses while we apply these quickening technologies to advance our human values, despite an apparent lack of consensus on what those values should be.”

Chapter 9 – Response To Critics

1. Choose a criticism from this chapter and address Kurzweil's response. If you believe the response to be in error, for example, because it is incomplete, give your own rebuttal to the response. If you believe the response to be essentially correct but weak, strengthen the response.
2. Do you think the end that Kurzweil, Silvers (see question 9, above), and other “techno-utopians” envision is truly Good, truly worth pursuing, considering the risks that lie along the path they advocate? Explain.
3. How will your answer to the previous question affect the rest of your life?