Prolog: Terrified - Twenty Questions/Answers

1. Google started out in 1998 with one "product". What was that "product"?
   - A website that used a novel which allowed users to search the internet

2. In 2011, Google created an internal AI research group. What is this group called?
   - Google Brain

3. What is the glue that unifies the diverse products, services, and blue-sky research efforts offered by Google and its parent company, Alphabet?
   - AI

4. What is Google's ultimate aspiration, as reflected in the original mission statement of its DeepMind group?
   - Solve intelligence and use it to solve everything else

5. Written in the 1970s, GEB was an outpouring of his many intellectual passions – mathematics, art music, language, humor, and wordplay, all brought together to address the deep questions of how intelligence, consciousness, and the sense of self-awareness that each human experiences so fundamentally can emerge from the non-intelligent, non-conscious substrate of biological cells. It's also about how intelligence and self-awareness might eventually be attained by computers. Who is he?
   - Douglas Hofstader

6. If you're a computer scientist, or a computer enthusiast, it's likely you've heard of it, or read it, or tried to read it. What is it?
   - Godel, Escher, Bach: An Eternal Golden Braid

7. What did the magnetic button affixed to the Sigma-2 mainframe computer that her hobbiest/engineer dad built in MM's childhood home proclaim.
   - I pray in FORTRAN

8. He described how, when he first started working on AI in the 1970s, it was an exciting prospect but seemed so far from being realized that there was

no "danger on the horizon, no sense of it actually happening." Creating machines with humanlike intelligence was a profound intellectual adventure, a long-term research project whose fruition, it had been said, lay at least "one hundred Nobel prizes away." Whose perspective, in particular, on AI research are captured in these two sentences?
- The perspectives of Hofstader

9. In the relatively early years of computing machines, those who believed that AI was possible in principle considered these two philosophers, in particular, to be 'the enemy' due to their passionate arguments against the possibility of AI. Who were these two Berkeley philosophers?
- John Searle and Hurbert Drayfus

10. Near the end of GEB, Hofstadter had listed "Ten Questions and Speculations" about artificial intelligence. One of the questions was: "Will there be chess programs that can beat anyone?" What, beyond the word "no," did Hofstadter have to say in his speculation about this?
- There may be programs which can beat anyone at chess, but they will not be exclusively chess players. They will be programs of general intelligence.

11. In formulating his "dead wrong" speculation, Hofstadter was influenced by Eliot Hearst, a chess champion and psychology professor who had written extensively on how human chess experts differ from computer chess programs. Characterize Hearst's review of how human experts engage in the play of the game.
- They show that the players rely on quick recognition of patterns of the chessboard.

12. IBM's Deep Blue machine? Please say a little something about it.
- Deep Blue is a machine that has specialized hardware for playing chess. It plays chess with a brute force method for the most optimal moves to play. It doesn't play the game based on pattern recognition like expert players do.

13. After describing EMI, Hofstadter had asked the audience – including several music theory and composition faculty – to guess which of two pieces a pianist played form them was a (little-known) mazurka by Chopin

and which had been composed by EMI. As one audience member described later, "The first mazurka had grace and charm, but not 'true-Chopin' degrees of invention and large-scale gluidity ... The second was clearly the genuine Chopin, with a lyrical melody; large-scale, graceful chromatic modulations; and a natural, balanced form." Many of the faculty agreed and, to Hofstadter's shock, voted EMI for the first piece and "real-Chopin" for the second piece. The correct answers were the reverse. Where did this scenario take place?
- At Eastman School of Music, in Rochester, New York

14. Which word best describes Hofstader's feeling about what Google itself is trying to accomplish in AI – selfdriving cars, speech recognition, natural-language understanding, translation between languages, computergenerated art, music composition, and more?
- C

15. Hofstadter's worries are underlined by Google's embrace of Ray Kurzweil and his vision of the Singularity. What exactly is the Singularity?
- It is an Ai that can improve itself and learn on its own

16. Hofstadter's feeling of terror with respect to AI was not about AI becoming too smart, too invasive, too malicious, or even to useful (and thus displacing workers). What was his terror with respect to AI about?

17. Is Hofstadter a materialist?
- No he is not

18. Mitchell quotes three well-known humans who have emphatically expressed their concerns about AI. Who are these three, and what did each have to say?
- Steven Hawking - "The development of full artificial intelligence could spell the end of the human race."
- Elon Musk – artificial intelligence is probably 'our biggest existential threat' and that 'with artificial intelligence we are summoning a demon.'

- Bill Gates – 'I agree with Elon Musk and some others on this don't understand why some people are not concerned."

19. Mitchell quotes three well-known people who argue that worries about AI are premature, at best. Who are these three, and what did each have to say?
    - Mitchell Kapor – "Human Intelligence is a marvelous, subtle, and poorly understood phenomenon. There is no danger of duplicating it anytime soon."
    - Rodney Brooks – 'grossly overestimating the capabilities of machines – those of today and the next few decades.'
    - Gary Marcus – ''strong AI' – that is, general human-level AI – 'there has been almost no progress.'

20. In the last paragraph of the prolog, Mitchell articulates what the book is about. What does she say?
    - "It is an in-depth exploration of some of the AI methods that probably affect your life, or will soon, as well as the AI efforts that perhaps go furthest in challenging our sense of human uniqueness."