CUARTO EJERCICIO
TURNO LIBRE

PARTE B

ELECTRIC MOUNTAIN

I've been fascinated by science and engineering my entire life. The first thing I remember wanting to be when I was a kid was an astronaut – it was the 1970s, the cultural peak of space exploration. By the time I was 10, I wanted to be a nuclear physicist, and this took me all the way through to a degree in engineering physics.

I was born in Canada, but when I was nine, my family lived in India, in my father's family home, for six months. If culture is everything that you do without thinking about why you're doing it, then our infrastructural systems, and the ways of life they make possible, are unquestionably an important part of culture. Even as a child, the differences between Canada and India – language, social norms, the deep poverty and the unignorable inequality – required serious adjustment.

In India, we only had running water for an hour or so in the morning and again in the evening. We collected it in buckets to use for bathing and flushing toilets the rest of the time. My mother boiled and filtered the water to make it potable to digestive and immune systems that were accustomed to clean, cold, carefully treated water from Lake Ontario. We quickly learned to expect dim lights and power cuts as the growing city's electrical grid struggled to cope with the fans and evaporative coolers that helped to bear the summer heat.

I doubt I would have given much thought to infrastructure had I not lived in these two different places. By moving to Canada, my parents had given me a new citizenship in a country with a different set of educational and economic opportunities, alongside the infrastructure that made it possible for me to access them.

Collective infrastructures – water and sewage, transportation, electricity, telecommunications – are good candidates for the most complex systems created by humans. They are planetary in scale, build on their own histories, interact with one another and have effects that extend far into the future. Their design, construction and operation require a wide range of technical disciplines – civil engineering, obviously, but also electrical, mechanical, environmental engineering, and the science of systems and of networks. All of these fields incorporate not just technologies but practices, ways of thinking, doing and building.

All over the world, charismatic megastructures are the public faces of our collective infrastructural systems. Bridges, of course, but also the soaring spaces of railway stations, from Grand Central terminal in New York City to the CN Tower in my home town of Toronto, which was built to be a communications hub, makes the skyline instantly recognisable or The Hoover Dam, in the desert outside Las Vegas which hosts 7 million visitors every year.

I have a deep affection for a lot of charismatic infrastructural megastructures. I adore the calm quiet of the paired hydroelectric power plants set inside green and forested Niagara Gorge, several miles downstream of the thunderous falling water and crowds of tourists at Niagara Falls. But if I had to name a favourite, one infrastructural installation does stand out.

Snowdonia national park, in north Wales, is idyllic, all green hills surrounding blue glacial lakes. Old farmhouses, ruined castles and modern buildings alike show off the magnificent locally quarried slate, which grew into an important industry in the 19th century (the region recently became a Unesco world heritage site because of the historic mining facilities). A Victorian-era railway carries tourists to the top of Snowdon, to take in the view. If you're lucky enough to be there in May, like I was, the charm of the landscape is further enhanced by absolutely adorable playful baby lambs everywhere. But I was there to see something that had been made deliberately, carefully and beautifully invisible, concealed inside a giant cavern carved out of a mountain. Like a supervillain, it gathers power to itself, usually under cover of darkness. The power, in this case, mostly lets people watch TV and make tea.

1. What childhood aspirations did the speaker have related to science and engineering?
   A. Astronaut and artist.
   B. Engineer and doctor.
   C. Nuclear physicist and astronaut.
   D. Environmentalist and engineer.

2. How long did the speaker's family live in India during their childhood?
   A. A quarter of a year.
   B. Half a year.
   C. A year.
   D. Two years.

3. What were the major differences the speaker noticed between Canada and India?
   A. Language, social norms, and technological advancements.
   B. Social norms, economic disparities, and language.
   C. Language, poverty, and inequality.
   D. Cultural norms and electricity usage.

4. How did the speaker's family manage water usage in India?
   A. Collected water from Lake Ontario.
   B. Used water only in the evenings.
   C. Collected and used limited water for bathing and flushing.
   D. Boiled water from the river for safe drinking.

5. What did the experience of living in Canada and India teach the speaker?
   A. The importance of language diversity.
   B. The significance of cultural differences.
   C. The value of different citizenships and infrastructural systems.
   D. The beauty of living near natural water sources.

6. What are considered as examples of collective infrastructures?
   A. Agricultural systems and social networks.
   B. Water and sewage, transportation, and electricity.
   C. Educational systems and health facilities.
   D. Telecommunications and entertainment industries.

7. What fields of expertise are crucial for the operation of infrastructural systems?
   A. Civil engineering only.
   B. Civil engineering and environmental science.
   C. Civil, electrical, mechanical engineering, and system sciences.
   D. Environmental engineering and mechanical sciences.

8. What do charismatic megastructures represent in the world?
   A. Complex systems created by humans.
   B. Architectural masterpieces.
   C. Engineering achievements in transportation.
   D. Modern technological advances.

9. Which famous structures serve as public faces of collective infrastructural systems?
   A. The Great Wall of China and the Eiffel Tower.
   B. Grand Central Terminal and the CN Tower.
   C. The Roman Colosseum and the Sydney Opera House.
   D. The Pyramids of Giza and the Taj Mahal.

10. What activities are the Hoover Dam and Grand Central Terminal known for?
    A. Hosting millions of visitors annually.
    B. Acting as communication hubs.
    C. Generating hydroelectric power.
    D. Providing power for nearby regions.

11. What is the speaker's favourite infrastructural installation?
    A. Niagara Falls.
    B. Hoover Dam.
    C. Snowdonia National Park.
    D. CN Tower.

12. What is notable about the paired hydroelectric power plants in Niagara Gorge?
    A. They operate silently in a forested area.
    B. They are located near the tourist-filled Niagara Falls.
    C. They power the entire Niagara Falls region.
    D. They have an impact on the region's water supply.

13. Where is the Niagara Gorge?
    A. Just by the Niagara Falls.
    B. Upstream the Niagara Falls.
    C. In the Niagara Falls touristic centre.
    D. In a forested area downstream the Niagara Falls.

14. What landmark became a UNESCO World Heritage site due to its historic mining facilities?
    A. CN Tower.
    B. Grand Central Terminal.
    C. Snowdonia National Park.
    D. Niagara Falls.

15. What do visitors to Snowdonia National Park enjoy in May, according to the speaker?
    A. Watching TV and making tea.
    B. Viewing historic mining facilities.
    C. Exploring Victorian-era buildings.
    D. Observing playful baby lambs.

16. What surprising element is concealed within Snowdonia National Park?
    A. A massive communications hub.
    B. A secret laboratory.
    C. A giant cavern carved out of a mountain.
    D. A hydroelectric power plant.

17. What purpose does the hidden installation in Snowdonia National Park serve?
    A. Generates power for running amusement parks.
    B. Provides energy for heating purposes.
    C. Supplies power for watching TV and making tea.
    D. Supports agricultural systems.

18. What elements in Snowdonia National Park made it become a Unesco world Heritage site?

A. Its green hills and blue glacial lakes.
B. Its forested areas.
C. Its mining facilities.
D. Its Victorian-era railway.

19. What feature better describes collective infrastructures?

A. They require a wide technological knowledge and skills to be developed.
B. They all require natural landscapes and concealed energy installations.
C. They are considered UNESCO World Heritage sites.
D. They are all hydroelectric plants.

20. What is the speaker's perspective on the infrastructural installation in Snowdonia National Park?

A. It is disruptive and harmful to the environment.
B. It is an architectural masterpiece.
C. It is an incredible and beautifully concealed power source.
D. It has no significant impact on the landscape.