Question 1

Part 1:

T_R = as the time to cross rocky terrain (2 km/h)
T_S = as the time to cross sandy terrain (3 km/h)
T_M = as the time to cross smooth terrain (5 km/h)

The time to cross each type of terrain is the inverse of the rover's speed on that terrain.

So for rocky terrain, 1/2 hours per km, sandy terrain 1/3 hours per km, and for smooth terrain, 1/5 hours per km.

Now, let's calculate the expected time for each route:

Route 1 (2 km long):

* Rocky: 50% x 2 x T_R = 0.5 x 2 x 1/2 = .5h
* Sandy: 20% x 2 x T_S = 0.2 x 2 x 1/3 ~= 0.13h
* Smooth: 30% x 2 x T_M = 0.3 x 2 x 1/5 = 0.12h

Expected time for route = .5 + .13 + .12 ~= **0.753h**

Route 2 (1.8 km long):

* Rocky: 40% x 1.8 x T_R = 0.4 x 1.8 x 1/2 = .36h
* Sandy: 40% x 1.8 x T_S = 0.4 x 1.8 x 1/3 ~= .24h
* Smooth: 20% x 1.8 x T_M = 0.2 x 1.8 x 1/5 = .072h

Expected time for route = .36 + .24 + .072 ~= **0.67h**

Route 3 (3.1 km long):

* Rocky: 10% x 3.1 x T_R = 0.1 x 3.1 x 1/2 = .155h
* Sandy: 50% x 3.1 x T_S = 0.5 x 3.1 x 1/3 ~= .517h
* Smooth: 40% x 3.1 x T_M = 0.4 x 3.1 x 1/5 = .248h

Expected time for route = .155 + .517 + .248 ~= **0.92h**

In summary, **Route 2 has the shortest expected time to traverse** and thus should be chosen for the rover to return the charging station as quickly as possible.

Part 2:

For Route 1, we need to add expected additional time due to the possibility of the crater wall being damaged.

The expected additional time for Route 1 due to the crater wall is: 0.3 x 0.75h = 0.225.

New expected time for Route 1:
Previous + Additional time for the Crater Wall: 0.7533 + (0.3 x 0.75h) = 0.753 + 0.225 ~= 0.978h

For Route 2, we need to add expected additional time due to the possibility of the bridge being out.

The expected additional time for Route 2 due to the bridge is 0.6 x 1h = 0.6.

New expected time for Route 2:
Previous + Additional time for the bridge being out: 0.672 + (0.6 x 1h) = 0.672 + 0.6 ~= 1.272h

For Route 3, no updated needed since there are no additional factors exist.

With the new updates, the expected times will be:

Route 1: ~.978h
Route 2: ~1.272h
Route 3: ~.92h

Based on the new expected times, **Route 3 is now the fastest route.**

Part 3:

Current expected time for Route 3 is ~.92h

If the Route 3 is smooth (40% chance):
The entire 3.1 km would be covered at 5 km/h, which would take 3.1 / 5 hours = **0.62h.**

- If the satellite confirms the terrain is smooth, the travel time would be .62h, which is less than the expected time without satellite information (.92h).

- We can save 0.92 - 0.62 = 0.3h if the satellite obtain information in less then 0.3h.

Part 4:
Model: GPT-3.5
Prompt:
```md
Solve the given problem:
<problem>
```

It contextually architects the solution correctly, and understands the problem. But since it's semantic reasoning network, it's failing while making calculations.

Question 4

What are the three dimensions along which Big Tech has an advantage in AI?

The Data, Compounding Power, Geopolitical advantage.

Why does AI Now think it's important to focus on Big Tech?

AI Now focuses on Big Tech because these firms have significant influence over the trajectory of AI technologies and their social, economic, and political impacts, which can exacerbate inequality and affect various aspects of life, from healthcare to education. Addressing the challenges posed by Big Tech can help tackle the root causes of these issues.

Priority 1 discusses Algorithmic Accountability. What does this mean? Why is it important to shift responsibility for detecting harm on companies themselves?

Algorithmic Accountability is about making companies show their AI is safe instead of waiting for others to find problems. It's key to make sure companies take the lead in stopping harm before it starts. It's important because it corrects power imbalances, making companies responsible for preventing harm before their products reach the market.

What are the windows for action that are identified? Which do you personally think are the most effective or promising?

The identified windows for action include shifting the burden of harm proof onto companies, enforcing structural regulations on AI, and establishing clear rules against biometric surveillance misuse. Structurally curbing harmful AI appears most effective as it can provide immediate, clear guidelines for safe AI deployment.

Do you agree with the assessment? How might we rethink our relationship with AI and with technology in order to avoid these potential negative outcomes?

The assessment suggests that AI's impact is not inevitable but shaped by human policy and decisions. To avoid negative outcomes, we should ensure AI development aligns with ethical standards and societal values, with a focus on transparency, fairness, and inclusivity.