Answer Sheet

Question 1: An Assortment of Images [50 pts.]

a. Write your answers to part (a) in the following blanks, which are worth one point each:

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. _____
21. _____
22. _____
23. _____
24. _____
25. _____

b.

c.

d.

e.

f.

g.

h.

i.

j.

k.

l.

m.

n.

o.

p.

q.

r.

s.

t.

u.

v.

w.

x.

y.

z.

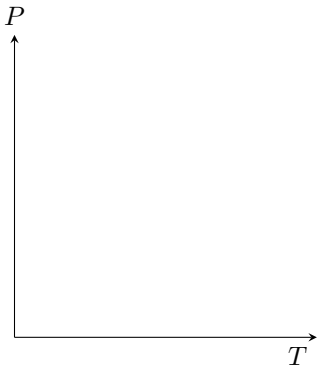
Question 2: Seasons on Mars [25 pts.]

a.

b.

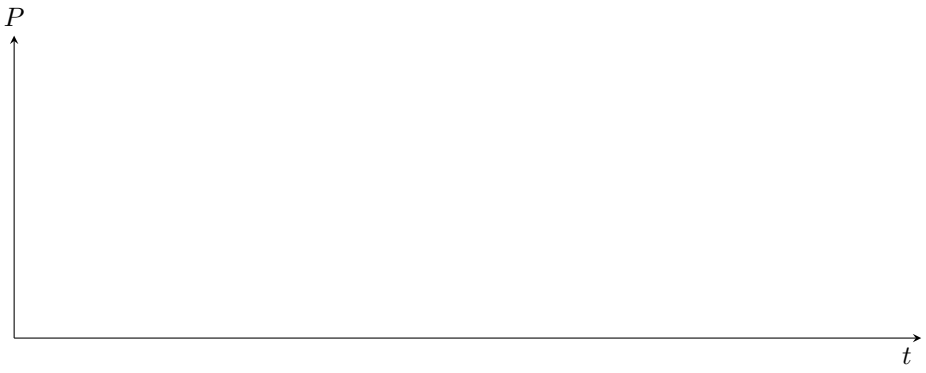
c.

d. Draw your phase diagram on the axes below, where P represents pressure and T represents temperature.



e.

f. Draw your plot on the axes below, where P represents the global atmospheric pressure of Mars and t represents time.



Question 3: Subsurface Oceans [25 pts.]

a.

b.

c.

d.

e.

f.

g.

Question 4: Amino Acids and Proteins in Space [25 pts.]

a.

b.

c.

d.

e.

f.

g.

h.

i.

j.

Question 5: Equilibrium Temperature [25 pts.]

a.

b.

c.

d.

e.

f.

g.

h.

i.

Question 6: More Equilibrium Temperature [20 pts.]

Situation 1: What if the planet is tidally locked?

a.

b.

c.

Situation 2: What if the planet has a substantial atmosphere?

d.

e.

f.

Question 7: Transits and Transmission Spectroscopy [25 pts.]

a.

b.

c.

d.

e.

f.

g.

h.

i.

Question 8: Mission Design [35 pts.]

This is intentionally written as an extremely open-ended question. We care primarily about your thought process, creativity, and knowledge as opposed to getting the "right" answer. Feel free to draw pictures, explain why you *didn't* pick something, voice reservations about something you *did* pick, etc. Remember to emphasize the underlined sections (mission architecture and instruments) in your response.

a. Mission architecture:

b. Power:

c. Communication:

d. Instruments:

e. Other: